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GRAMMEMIC THEORY IN REFERENCE TO RESTRICTED PROBLEMS OF MORPHEME CLASSES

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0. Introduction
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2. Class meaning
3. Optional expansion of optional classes
4. Verb types in reference to syntactic occurrence
5. Charts for the prediction of acceptable forms
6. Numbering of classes from stems or from word ends
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0. This paper, in conjunction with that of Doris Cox on Candoshi Verb Inflection, is an attempt to show how interaction has recently been seen by us in the field of morpheme classes in verb inflection. Specific data from a 'before and after' view of Candoshi verb morphology presents for the reader the structural system (in Cox's paper) on the one hand, and the initial experimental analysis on the other (in the present paper) while a commentary recreates some of the questions which arose during the transition from the one to the other.

The theoretical stimulus which led to the following suggestions and assumptions came from the study of grammemics.[1] In the grammemic material the reader will find made explicit, in connection with a different type of presentation, a number of the assumptions being utilized below. The presentation of materials specifically modeled to carry the grammemic assumptions further (so that the presentation looks considerably different from that of Cox) can be found in the studies in this issue of IJAL by Helen Long Hart for Amuzgo, by Marvin Mayers for Pocomchi, and Olive Shell for Cashibo. Some readers will be interested to note that certain of the theoretical contributions of grammemics can be adopted into older systems of analysis without as an extensive a reworking of the theoretical framework as is seen in the studies of Hart, Mayers, and Shell.

[1] See Chapter 7 of my *Language in Relation to a Unified Theory of the Structure of Human Behavior*, Part I (Glendale, 1954).

1. Grammemics would indicate that priority of attention must be given, in charting relevant orders of affixes, to any affixes or to any classes of affixes which are obligatory to the total verb. Charting of positions, whether beginning from stem or from end of word, should not be allowed to ignore those classes of morphemes which would be established by a study of their membership in obligatory classes.

In grammemic theory this shows up, further, in reference to the emphasis upon minimum formulas as over against maximum formulas. The minimum formula in each case includes, exclusively, obligatory classes within the construction. Expansion of the verb by optional affix classes is structurally different in function from the action of the obligatory components of that verb.

2. Since, in grammemic theory, functional proportion is one of the concepts within the basic assumptions of the system, and since in many instances this functional ratio of one item to its context in proportion to the ratio of a substituting item to the same context is often seen as 'a meaning' of that spot or function, or is seen through the 'class meaning' of the substituting elements, it is evident that if no other characteristic forces the decision as to which class various

morphemes should enter, affixes of like general meaning or function should be grouped together as members of a class with class meaning. This implies that if the student has first noted classes on the basis of obligatory occurrence, and secondly has charted relative orders with this in mind, but beginning from the stem, and third, has charted relative orders, with obligatory components in mind, beginning from the end of the word, that if there is still uncertainty as to which class of morphemes a particular morpheme should be classed with, it should where possible be classed with others of like general meaning (such as 'aspect'), always provided that this does not override the relative orders determined by the primary data. (That is, for example, an aspectual affix which is a prefix could not be moved into a column with an aspectual affix which is a suffix, since this would be overriding the data obtained in reference to observed stem-affix order, but if it were seen that a particular affix must come following order 1, counting from the stem, but preceding order 7, counting from the stem, with no other distributional evidence to indicate whether it should go in order 3 or 4 or 5 or 6, then if order 5 is comprised exclusively of aspectual affixes whereas orders 2, 3, and 6 have no aspects, then, other things being equal, this aspectual morpheme under consideration may most conveniently be assigned to the aspectual class.)

3. In some instances, charting of orders must not be done at all in reference to the stem, as such, nor to the end of the word, as such, nor to affixes obligatory to the stem, as such, but must be done in reference to their optional addition to some other optional item of the affixual series. If, for example, there is a certain optional affix, and when, but only when, this affix occurs a further affix sometimes occurs, then this further affix is considered to be in an immediate-constituent relation with the first, rather than in immediate relation to the affixual series as a whole. This leads to the study of various sub-assemblies within the verb, similar to the sub-assemblies within the syntax work of Hart.

4. When we are looking for structural reasons for dividing the verbs in order to reach the goal just referred to, grammemics gives us a further clue. Before charting his verb affixes the student should be urged to combine into a single chart only those verbs which come in the same kind of a spot in the syntax. The first subdivisions of the verbs should be groupings gained from their occurrence in the spots of larger structures—that is, according to their function in utteremes. Notice that this implies immediately, for example, that dependent versus independent verbs should not be handled on the same chart, in the early stages at least. If, in later stages, these charts are seen to be so similar that one wishes a hyper-class composite of the two charts, that may sometimes be a useful later step in the procedure, but for early stages our field experience shows us that such matters attempted too early lead to great practical confusion, and in any case may be theoretically invalid unless the grammemic coalescence on the chart is handled with considerable delicacy (see Shell, for such a verb hyper-class). Similarly, items which show various kinds of concord may need to be treated separately in the early stages.

One is not justified in assuming that it is useful to make a single chart showing the relative order of the affixes of all the verbs of a language. This is tantamount to assuming that all the verbs constitute a single structure. The Cox material showed very clearly that an attempt to include all the inflectional orders of the verb on a single chart led to disadvantages in a number of ways. It made the material unwieldy, because of the large number of orders, but much more serious was the fact that it implied a great many falsehoods. By seeing all these relative orders on a single chart,

the reader is encouraged to assume that potentially a word could be made up of any combination of affixes from the various orders of the chart. This is sometimes—as in the Candoshi material of Cox—very far from being the empirical situation. On the contrary, the obligatory elements for different kinds of verbs may differ, and the restrictions as to which affixes may go with the obligatory components of these verb types may differ sharply, even while overlapping.

It is the presence of the overlap in the Candoshi which makes it difficult for the student to see the necessity of treating the verb types separately. Inasmuch as many of the affixes occur in several types of verbs, it may seem logical to him to include all these verbs in a single chart—even though it leaves him frustrated since it does not seem productive.

The principle that various verb types may need separate charting, then, also needs to be made explicit in pedagogical treatment. Experience on the field indicates beyond question that students who do not have this fact pointed out to them do not necessarily find it rapidly for themselves.

The use of syntactic considerations in the morphology helps to emphasize that the morphology-syntax threshold is often an artificial one, and that even in languages where such a threshold is operating in some structural ways, that nevertheless in other structural senses this threshold may be crossed constantly.

5. Also growing out of Suggestion 4 is the assumption that an adequate analysis of the affixual series should be fruitful for the productive manipulation of language. Roughly, the reader should know that he can make up any kind of verb implied by the chart, and have it constitute a possible verb form. The word 'roughly' is designed to leave room for restrictions of a semantic type (which are often overridden in fairy tales or special cultural contexts) or for arbitrary restrictions which are sufficiently localized as to need separate treatment in detailed formulas (see Cox's material) but not important enough to make valuable the use of separate charts.

6. Pedagogical materials should avoid the assumption that suffix classes must be numbered from the stem toward the end of the word, and should avoid the correlated assumption that the step by step analytical procedure for determining morpheme classes must necessarily be worked from the stem outward toward the end of the word. This specifically forces a modification of Nida's pedagogy, since he consistently instructs the student to work from the stem outward, as can be seen in the following quotes: 'Rule off and number additional columns in which to indicate successive positions counting from the stem' (Nida, Morphology, 1949, p. 205); 'Indicate in these columns (by x) all the actual positions, counting from the stem, which are occupied by each morpheme' (p. 205); '*Suffixes—Actual Position Counting from Stem—Forms Containing Suffix in Farthest or Highest Actual Position from Stem*' (heading of chart, p. 206). Notice that grammemic theory does not say that relative position counting from the stem is *never* structurally relevant, but merely that it is not *necessarily* structurally relevant in any particular instance.

7. We now turn to the early material of Cox in order to follow some stages of the transition from it to her published paper. This earlier material included a chart of the relative order counting from the stem. (See Tentative Chart I given here.) In addition it included a series of paragraphs giving the specific restrictions of this distribution. The one large chart has now been broken into several, as the reader can see by consulting her published version; the materials on the restrictions are to be found there also. Our particular attention will be focused, therefore, on the earlier chart before re-

TENTATIVE CHART I

Representing All Candoshi Verbs, with Suffixes Charted from the Stem

1	2	3	4	5	6	7	8	9	10	11	12	13
-ka T181 locative	-ya T191 recent	-r *T201** current	-ma *T211* durative	-ta/* *T221* punctiliar	-ran T231 past	-nč *T241* complete	-č *T251* incomplete	-ša/ *T261* 2nd order	-rii T271 specific action	-t T281 individualizer	-i/ *T291* 1st person singular	-na//* T301 1st person singular affirmative
-mpa T182 intensive	-ts *T192* possible	-šin *T202* movement				-k *T242* indicative		-o *T262* conditional	-nta/ *T272* 1st person objective		-iš/ *T292* 2nd person singular	-ya// T302 1st person plural and 3rd person affirmative
-tar *T183* habitual	-tsa//* T193 pluralizer of command							-masi/ *T263* 1st order	-si// T273 permissive		-o/ *T293* 3rd person singular	-ča// T303 affirmative
-pi *T184* desiderative								-inč *T264* 2nd person objective	-ints// T274 plural permissive		-ini/ *T294* 1st person plural	-pa// T304 potential
-ŋki/ *T185* imperative											-is/ *T295* 2nd person plural	-ši// T305 negative
-šini/ *T186* imperative with motion											-ana/ *T296* 3rd person plural	
-ŋks *T187* desiderative											-ič/ *T297* impersonal	
-mama/ *T188* subordinate											-a// T298 interrogative	

* The following symbolization was added to the original chart in the course of the revision described in this article: Items with italic numerals are in some sense, for some verb complexes, obligatory; details are not symbolized here. Items followed by (/) sometimes occur word final. Items followed by (//) occur word final only.

vision. On this chart, which the reader should be prepared to consult frequently from now on, we have put the letter T before every number. This is to imply that the numbering is 'tentative'. It seemed impossible to discuss the development of the chart if we were to use her new numbers, following her re-analysis. In order, therefore, to avoid the danger that the reader studying my materials should confuse the numbers here with her revised numbers, the tentative symbol is added to the early numbers; in order to find the new numbering for the same affix, the reader must consult the charts in her published article.

Notice that on the tentative chart Cox listed various classes by centuries and decades, according to the Voegelin technique. When she presented the chart to our workshop at Yarina Cocha, in Peru, it looked very good, since it showed a grasp of the individual morphemes and seemed to have been systematically approached. Since we had been studying, in the workshop, some of the grammemic material, we suggested that the check the result of charting separately she transitive and intransitive materials, etc., if any, since that approach had paid off elsewhere in the grammemic theory, and that she check to see what centuries or decades were obligatory and which were optional, if that could be done.

When we tried to understand Candoshi structure, from the earlier tentative chart and from the supplementary data lined up in response to these suggestions, however, some frustration set in. The results of this added work were not as fruitful as we had hoped. Transitive and intransitive categories were irrelevant, and others—relevant to the syntax—did not appear this early in the re-analysis. In addition, the obligatory elements did not seem to pattern in terms of the centuries or decade classes, with the exception of the "persons" which were largely in the T290 class (see Tentative Chart I) and which were in general somewhat obligatory. In addition, T183, T201, T202, T241, T251, T261, were often required. Yet the situation was very irregular in that with certain T290 arrangements one or the other morpheme would occur, such as T201, and when that occurred the sequences seemed to be considerably arbitrary. Stems did not occur by themselves, but in checking to see what affixes constituted classes which were obligatory to the stems, the required items seemed to be chosen almost at random from the various decade classes. For example from decade class one, items T183, T184, T185, T186, T187 and T188 were part of an obligatory class, but not T181, T182; and from the second order T192 was in the obligatory class, but not T191 or T193. This looked unconvincing.

A second difficulty which did not appear too serious at the time, since the same characteristic might be seen to some degree in other language systems, was that the meanings of the members of the various classes were considerably mixed up. In the first order, for example, there was locative, intensive, habitual, desiderative, imperative, and subordinate. Similarly in the second order there was recent act, possible act, and pluralizer of command.

At this point, however, we were about ready to assume that the picture substantially reflected the structure which was an arbitrary system that was just built this way. In checking to see if dependent items could be eliminated from the chart to be set up as a separate system so as to get rid of some of the cumbersome details, subordinate T188 came out, conditional T262 came out along with T271 which accompanies it, and T221 came out part of the time but not all of the time. This still left the situation quite irregular.

A much more important point then began to be checked—namely, that certain items could be word final and that others could not be word final. (See symbol /, added to Chart I at this stage). When we went through the entire verb chart with this in mind, it became clear that the two imperatives T185

and T186, were optionally word final, that the persons of T290 were optionally final, with the affirmatives, etc., of T300 being always word final (see symbol //) if they occurred at all. In addition, there were two or three special bits which caused us to focus attention on them: Preferred act T263 was optionally final; the two permissives T273, T274, were word final only, and pluralizer of command T193, was also word final only.

It was noticed next that T193 could occur only following the imperative T185. This then was evidently in an immediate constituent relationship with it. On the other hand T191 and T192, in the same order class as T193, did not enter into this immediate constituent relationship. Should there have been, then, a new order for T193 which would come between the place where the imperatives occurred and the place where T191 and T192 occurred? This could have been arranged on the chart. Before doing so, however, it was noticed that the final character of the T193 pluralizer made it look somewhat as if it could come toward the end of the chart—in spite of the fact that it was only in the second order next to the stem whereas the finals were in order thirteen—and its meaning was something like that of the class of persons, i.e. century T290. This last observation concerning the 'early' Suffix T193 which could occur only word final, proved to be the crucial turning in the analysis, since presently it forced into attention some of the basic but tacit assumptions referred to above. From here the question was asked, "What would happen if T193 were transferred to the T290's, putting it near the end of the chart?"

This question in turn brought to attention a very important underlying assumption in the first treatment of the paper, where it had been unquestioningly assumed that orders of suffixes work from the stem toward the end of the word. Yet this assumption now seemed to be completely arbitrary; once the question was raised, it appeared that there was no theoretical reason why the setting up of orders should not be worked from the outside of the suffixial range toward the inside. This gave further weight to the grammemic contention, in view of the arbitrariness of the old assumption, that when one is dealing with a string of suffixes in reference to those which are obligatory and those which are optional, this obligatory status takes some kind of precedence in charting over the mere relative orders in which items might come.

With this in mind, the question took the form: "What would happen if one started charting from the final suffixes toward the beginning?" Would it—as seemed certain—change the groupings of the classes? If these classes were changed in grouping, would it reveal something about the structure which was not shown in the earlier materials? Would this then give the final answer, or would there be needed a third charting in reference to the obligatory materials? Or would there be some kind of compromise chart between these approaches which, when made, would take care not only of the data of relative order, but would in addition leave semantic groupings more carefully together? If this latter could be obtained, it would also fit more readily into that part of grammemic theory in which proportion in relation to the stem or in relation to any other part of the utterance is considered a relevant criterion.

Cox proceeded at once to re-chart the suffixes of independent verbs, simplifying the picture, at the same time, by deleting the suffixes of dependent verbs, as a development of the grammemic suggestions earlier given her, working from the end of the word toward the stem. In doing so, a number of interesting items developed:

T181 and T182, as may be seen by consulting Chart II, appeared as constituting a separate class, distinct from everything else in the old order one, by being outside the original quasi-obligatory group and by an entirely different distribution from the others of that old order.

The new order two had T191 only, which separated it from the semantically distinct

TENTATIVE CHART II

Independent Verb Suffixes Charted from Word-final Position

1	2	3	4	5	6	7	8	9	10
-ka T181 locative	-ya T191 recent	-ran T231 past	-k *T242** indicative	-ta T221 punctiliar	-č *T251* incomplete	-ša *T261* 2nd order	-t T281 individualizer	-i/**T291* 1st person singular	-na//*T301 1st person singular affirmative
-mpa T182 intensive		-r *T201* current	-ma *T211* durative	-ts *T192* possible	-nč *T241* complete	-šin *T202* movement	-masi/ *T263* 1st order	-iš/ *T292* 2nd person singular	-ya// T302 1st person plural and 3rd person affirmative
					-tar *T183* habitual	-pi *T184* desiderative	-ŋks *T187* desiderative	-0/ *T293* 3rd person singular	-ča// T303 affirmative
						-ŋki/ *T185* imperative		-ini/ *T294* 1st person plural	-pa// T304 potential
						-šini/ *T186* imperative with motion		-is/ *T295* 2nd person plural	-ši// T305 negative
								-ana/ *T296* 3rd person plural	-tsa// T193 pluralizer of command
								-ič/ *T297* impersonal	-si// T273 permissive
								-inč/ *T264* 2nd person objective	-ints// T274 plural permissive
								-nta/ *T272* 1st person objective	-a// T298 interrogative

* Compare the arrangement of final-only forms (symbolized by //) on this chart with those on Tentative Chart I, and note their greater tidiness here. Compare, similarly, the increasing uniformity of groups with (/) and with sometimes-obligatory (i.e. italicized-number) morphemes as one progresses from Tentative Charts I through III and on to Miss Cox's final results as seen in her paper.

T193 (which was also distributionally utterly distinct in that the latter occurs with the imperative only) and differentiated it also from T192 which was in the quasi-obligatory group.

New order three united into a morpheme class T231 past, and added to it T201, which meant temporary or current act, and which made a better semantic grouping.

New order four united T242 indicative, with T211 durative, which made a better semantic grouping.

New order five brought punctiliar T221 and possible T192 together, which is also a better semantic grouping.

This new classification also leaves new order six with a nice semantic group T251, T241, T183, all of aspect.

New order seven of this re-grouping is non-uniform in meaning, with order, movement, desiderative and imperative.

New order eight is also semantically inconsistent, with subject individualizer T281, preferred action T263, and desiderative T187.

On the other hand, new order number nine includes T291 through T297, which are persons, and adds T264 and T272 which are also personal, and are mutually exclusive with the others, but which nevertheless refer to persons as objects rather than to persons as subjects.

New order ten brings in another interesting group, since in addition to keeping the first person singular affirmative T301, first plural and third person affirmative T302, the affirmation-of-potential T304, and the affirmation-of-negative T305, it adds the pluralizer of imperative T193, as well as the two permissives T273 and T274 which it takes from old order ten where they did not fit neatly because of meaning and distribution. In addition it takes the interrogative out of the old order of persons and puts it here into a group of a modal type.

Moreover, the imperatives, which act as a sub-group under the new order seven with T185 and T186 (and optionally can be followed only by T263 plus or minus T273 or T274 from new order ten, or—in the case of T185—by T193 from new order ten) could now be abstracted as a separate word type, because of the special relationship. This would leave new order ten, once the imperatives were removed, as being an affirmation group with T301 through T305, plus T298, with a neat semantic relationship.

In summary, then, by reversing the charting sequence and taking out dependent and imperative types, the whole picture tidies up a great deal—items which are of similar distribution tend to fall more into similar distribution classes, items with similar meaning tend to fall more into formal classes, and distributional restrictions among the verb types are easier to follow in the charting.

Miss Cox next proceeded to see what kind of compromises could be made between these two approaches (stem-to-end versus end-to-stem) to see whether, without changing relative orders as such, there could be some movement of the individual items which would further tidy up the groupings of an obligatory type, or/and the semantic groupings. She was careful to see that this was without disturbance to the distributional possibilities and restrictions. The one thing she did was to move particular items to right or left on the chart where no distributional data—no actual verb forms as recorded—prevented her doing so.

The chief advantage obtained by this next change was that it led to a useful statement concerning certain obligatory morphemes which had frustrated early re-analysis since they seemed to fall into no consistent classes. The reader may study the new chart, Tentative Chart III, in reference to the next sentence, which provides a summary which reaches to the heart of these obligatory relations: The stem of the independent verb must be accompanied by one item from either column 4, 5, 6, or 8 on Chart III, plus an item from T290, or the stem may be followed by an item from 7a without one from T290, or the stem may be followed by T264

TENTATIVE CHART III

Independent Verb Affixes Modified to Highlight Some Obligatory Characteristics

±1*	±2	±3	+(∓4*	±5	±6	±7-a	±8)	±9	+10	±11
-ka T181 locative	-ya T191 recent	-ran T231 past	-k *T242* indicative	-ma *T211* durative	-č *T251* incomplete	-ŋki/ *T185* imperative	-ša/ *T261* 2nd order	-t T281 individualizer	-i/ *T291* 1st person sing.	-na// T301 1st person singular affirmative
-mpa T182 intensive	-ta T221 punctiliar		-r *T201* current	-ts *T192* possible	-nč *T241* complete	-šini/ *T186* imperative with motion	-masi/ *T263* 1st order		-iš/ *T292* 2nd person sing.	-ya// T302 1st person plural and 3rd person affirmative
					-šin *T202* movement	-nta/ *T272* 1st person objective 7-b			-o/ *T293* 3rd person sing.	-ča// T303 affirmative
					-tar *T183* habitual				-ini/ *T294* 1st person plural	-pa// T304 potential
					-pi *T184* desiderative	-inč *T264* 2nd person objective			-is/ *T295* 2nd person plural	-ši// T305 negative
					-ŋks *T187* desiderative				-ana/ *T296* 3rd person plural	-a// T298 interrogative
									-ič/ *T297* impersonal	-tsa// T193 pluralizer of command
										-si// T273 permissive
										-ints// T274 plural permissive

* In this arrangement, the obligatory versus optional nature of classes is fairly well defined; the symbols with the century and decade classes, however, though in general true have a few special exceptions. The parentheses around orders 4 through 8 and the ∓ ... ± ... symbols imply that in general some one of these included orders must be represented in the forms, without any particular one being essential. For further rearrangement, taking care of a few of the irregularities which remain in this third tentative chart, see the final results in the companion article by Cox.

plus T304, or T293 plus T304. In addition, a further semantic tidiness is seen: Within this set of postulated orders 4–8, which are correlated in some way as to obligatory relations, four of them (4, 5, 6, 8) appear to have a general semantic component which might be called 'status'; order four on Chart III implies indicative (T242) or current (T201) status, order five is itself stative in T211, order six has action status (incomplete T251, complete T241, movement T202, habitual T183, desiderative T184 and T187), order seven has imperative T185 and T186 along with object forms T272 and T264 which often carry with them a semantic component of urgency or strong desire, while order eight implies either preferred (T263) or nonpreferred (T261) status of an action. Thus the semantic relations, though in part vague, support the formal relation of obligatory character in demonstrating a kind of unity for orders 4–8 (as over against the remaining orders), which might make it convenient to label them as a status-obligatory hyper-class. (Note that order seven, where the meaning is not of the status type, will be removed on formal, distributional grounds in a later step, strengthening the usefulness of this label.)

Certain residues on Tentative Chart III, however, now came insistently to attention: Why should two object suffixes be found with the non-object imperatives of order seven? Should they be moved to order ten with Class T290, the subject persons? Their special meaning, plus special distributional limitations (they could be preceded only by T191 or T201 or T251, while T264 must be followed obligatorily and T272 optionally by T304, and nothing else) did not let them fit any rules for T290, nor for other members of orders 5–8. Similarly, the imperatives had highly special distributional limitations: The imperatives do not quite fit the person-order class ten, because they can be followed by -masi T263, which is in order eight; on the other hand, they appeared very queer in that they could stand alone after the stem or could be followed by the permissives T273 or T274, while T185 could be followed also by plural T193. Finally, the desideratives T184 and T187 had special distributional restrictions: T187 occurs only before T291 or T294, whereas T184 occurs before any person of Class T290 except T298, and in addition may optionally be accompanied by T281 plus or minus T301.

These formal-semantic considerations led to the last major revision of the suffix analysis, and can be seen reflected in the published charts of Cox's paper. The independent verbs were subdivided into indicative and hortatory types, with the latter further subdivided into desideratives, imperatives, and optatives (the last name given to the verbs with T272 and T264 because of the semantic component of urgency or strong desire sometimes contributed by these suffixes).

A few further changes—such as treating emphatic suffixes T301, T302, and T303 as allomorphs of a single morpheme—completed the analysis of the independent verbs. The dependent verbs were then treated in an analogous manner. Finally, the orders and affixes were re-numbered to emphasize the reversal of point of reference from stem to word-final, and to give consistent numbering within the orders, and (by way of decade classes within the century 500) to symbolize the obligatory-status hyper-class.

CANDOSHI[1] VERB INFLECTION

Doris Cox

Summer Institute of Linguistics

1. Construction classes
2. Suffix classes and their generalized distribution
3. Restrictions on distribution of affixes of independent verbs
4. Restrictions on distribution of affixes of dependent verbs
5. Allomorphic variations

1. All stems are bound and enter into two main types of morphological constructions. This dichotomy of constructions is made on the basis of the occurrence of certain affix sequences within the verb and the distribution of the resultant verbs in relation to other verbs in the sentence.

On a syntactical or outer distributional level, the first class of verbs is independent, not requiring another verb to complete the utterance. Verbs of the second class are dependent and do require another verb or verbs before the utterance is complete.

On a morphological or inner distributional level, any independent verb must have at least a person suffix or suffix implying person. Within this independent group there is also a distinction between those which obligatorily occur with one of a group of suffixes signifying aspect and those which never occur with these suffixes. The first (IA) is independent indicative, and the second group, independent hortatory, is divided further by internal suffixial restrictions into desiderative (IB), imperative (IC), and optative (ID).

Dependent verbs are separated into a dependent conditional class, which occurs with Suffix 4513 -o *conditional* plus affixes of aspect and person, and a second class called nonpersonal dependent, which does not occur with that suffix. On the other hand, the nonpersonal group occurs with

[1] A language spoken by about 2000 Indians living mainly between the Morona and Paztaza Rivers in the northern part of Peru. Two groups of Indians, the Shapras and Muratos, comprise the Candoshi tribe. The Murato dialect is only slightly different from the Shapra; they are mutually intelligible. Data were gathered during field trips to a Shapra community on the Pushaga River in the years 1950–55.

The *Handbook of South American Indians* 3.629 (Washington, 1948) disagrees with Tessman's classification, which agrees with mine, of "Murata" and "Shapra" as subtribes of "Kandoshi." The *Handbook* 3.248–249 also lists "Murato" and "Zapa" (thought to be Tessman's "Shapera") as tribes in the Zaparoan family, but also gives the information that linguistic data on Zaparoan are very deficient, and the classification of the component languages and dialects confused, with no attempt ever having been made to make the classifications on a scientific linguistic basis. The Candoshi language is not similar to Andoa, the only other language listed in the Zaparoan family with which we have been able to make a comparison.

The basis for the system used in this paper of numbering suffixes by centuries and decades was laid by William L. Wonderly (under the direction of C. F. Voegelin) in his Zoque III: Morphological Classes, Affix List, and Verbs, IJAL 17.137–162 (1951). The numbering of affixes in the Totonac material, Herman Aschmann and William L. Wonderly, Affixes and Implicit Categories in Totonac Verb Inflection, IJAL 18.130–145 (1952), on the basis of their positions relative to the stem, more nearly parallels the use I have made of numbering in Candoshi. However, in this Candoshi paper there is a development of the numbering technique in that century numbers also reflect the structure of obligatory versus optional classes of suffixes, and millenium numbers are added to distinguish classes of words.

A rough draft of this paper was done on one of the field trips, but the author was supervised and greatly assisted by Kenneth L. Pike in a complete reorganization of the data and the rewriting of the present paper. For the principles involved in this remaking, see his paper Grammemic Theory in Reference to Restricted Problems of Morpheme Classes, in this issue of IJAL.

CHART IA

Independent Indicative Suffixes

±800	±700	±600	+(∓540	±530	±520	±510)	±300	+200	±100
811 -ka locative	711 -ya recent	611 -ran past	541 -k indicative	531 -ma durative	521 -č incomplete	511 -ša 2nd order	311 -t individualizer	211 -i 1st person singular	111 -ya emphatic
812 -mpa intensive	712 -ta punctiliar		542 -r current	532 -šin movement	522 -nč complete	512 -masi 1st order		212 -iš 2nd person singular	112 -pa potential
				533 -tar habitual				213 -o 3rd person singular	113 -ši negative
				534 -ts possible				214 -ini 1st person plural	114 -a interrogative
								215 -is 2nd person plural	
								216 -ana 3rd person plural	
								217 -ič impersonal	

Note: The classes, in general, are optional or obligatory as indicated by the signs preceding the century numbers; for a few special conditions, however see §3. Century 500, as a whole, is obligatorily manifested in the forms, but the subclass doing so may be any one of the decade classes within that century

the dependent Suffix 5011 -mama *subordinate* or Suffix 5712 -ta *punctiliar*, whereas the conditional group may only occur with Suffix 5712 of these two.

2. Suffixes are placed into classes signifying linear order relative in general to the end of the construction, but with some modification in accordance with their obligatory or nonobligatory relationship to the stem, or their semantic likeness to each other. Nowhere, however, has linear order of the suffixes in any one word been violated to place items according to either of the last two criteria (i.e. the order of suffixes has not been metathesized to get them into classes).

CHART IB

Independent Desiderative Suffixes

1010	1300	1200	1110
1011 -pi desiderative 1012 -ŋks desiderative	1311 -t individualizer	1211 -i 1st person singular 1212 -iš 2nd person singular 1213 -o 3rd person singular 1214 -ini 1st person plural 1215 -is 2nd person plural 1216 -ana 3rd person plural 1217 -ič impersonal	1111 -ya emphatic

CHART IC

Independent Imperative Suffixes

2020	2510	2010
2021 -ŋki imperative 2022 -šini imperative with motion	2512 -masi 1st order	2011 -tsa pluralizer 2012 -si permissive 2013 -ints plural permissive

CHART ID

Independent Optative Suffixes

3700–3500	3010	3110
3711 -ya recent 3542 -r current 3521 -č incomplete	3011 -nta 1st person objective 3012 -inč 2nd person objective	3112 -pa potential

Suffix classes are symbolized by century numbers; and within Century Class 500 there is a group of suffixial subclasses which in certain respects belong to the same larger obligatory distributional class even though they are in adjacent rather than identical linear positions. The subclasses are separated by decade numbers 10 through 40 within the 500 century. Within each decade subclass, members are likely to have a semantic component in common (e.g. order 510; completeness, 520); and a higher-layer semantic component, "stative character," seems to run through all the subclasses of the century. For an inventory of suffixes occurring with independent indicative verbs, listed by number, form, meaning, and relative order, see Chart IA.

Numbering of suffix classes to signify linear order in relation to the end of the stem of Construction IA begins at 100 and continues through 800. Millenium decade numbers 1010, 2020, 3010 are used to signify additional obligatory suffixes of independent hortatory verbs, with 2010 additional but optional. Millenium 1000 used in that set and added to old numbers, as well, indicates affixes occurring with desideratives, 2000 with imperatives, and 3000 with optatives of Constructions IB–ID, and 2010 signifies plural or permissive modifiers of IC. For suffix inventory relevant to independent hortatory verbs, see Charts IB–ID.

Suffixes repeated on Verb Chart IIA, dependent conditional, keep the numbers

CHART IIA

Dependent Conditional Suffixes

4800	4700	4600	4540	4530	4520	4510	4400	4300	4200
4811 -ka locative 4812 -mpa intensive	4711 -ya recent 4712 -ta punctiliar	4611 -ran past	4541 -k indicative 4542 -r current	4533 -tar habitual	4521 -š incomplete 4522 -nč complete	4513 -o conditional	4411 -rii specific	4311 -t individualizer	4211 -i 1st person singular 4212 -iš 2nd person singular 4213 -o 3rd person singular 4214 -ini 1st person plural 4215 -is 2nd person plural 4216 -ana 3rd person plural 4217 -ič impersonal

CHART IIB

Nonpersonal Dependent Suffixes

5011 -mama subordinate	5511 -ša 2nd order
5712 -ta punctiliar	

designated for Verb Chart IA, independent indicative, with addition of the 4000 millenium number which signifies their reassignment to a new distribution class in the new construction. Additional suffixes, on Chart IIA but not on Chart IA, are also given a 4000 number.

Millenium number 5000 used on Chart IIB signifies suffixes used in nonpersonal dependent verb sequences. Suffixes 712 and 511 which are repeated from independent Chart IA are renumbered 5712 and 5511.

3. Section **2.** and the charts, imply complete uniformity in the distribution of the members of the different construction classes, but certain restrictions hold which do not show on the charts. Now, in **3**, restrictions in the distribution of suffixes of independent verbs will be described.

3.1. The first restrictions to be discussed are those relevant to obligatory components. Verb construction classes differ according to the suffixes required to be present. The classes differ, therefore, as to the minimum, non-expanded form; i.e. as to the smallest number of suffixes permitted with the bound stem. Note the following restrictions stating the minimum obligatory suffixes on alternative forms of constructions IA–ID.

Class IA	Stem + 500 + 200
or	Stem + 213/214/216 + 112
Class IB	Stem + 1010 + 1210
Class IC	Stem + 2020
Class ID	Stem + 3011
or	Stem + 3012 + 3112

These formulas are to be read as follows: Class A in its minimum form may be comprised of stem plus some one suffix of Subclasses 510–540 plus some one suffix from Class 200; or Class A may be comprised of stem plus Suffix 213/214/216 plus Suffix 112. For example: panáako *he gives* (paná- *to give* = stem; -k *indicative* = 541; -o *third person singular* = 213); któŋkašini *I returned from eating* (katóŋka- *to eat* = stem; -šin *movement* = 532; -i *first person singular* = 211); irípančiš *you have run* (irípa- *to run* = stem; -nč *complete* = 522; -š *second person singular* = 212); patáataša *he works then* (patáata- *to work* = stem; -š *second order* = 511; -a *third person singular* =

213); máŝeemasa *let him ask first* (máši- *to ask* = stem; mas- *first order* = 512; -a *third person singular* = 213); máŝanapa *that he may hear* (máŝana- *to hear* = stem; ∅ *third person singular* = 213; -pa *potential* = 112).

A Class B minimum sequence is comprised of stem plus Suffix 1010 plus Suffix 1210, thus: yasápi *I want to know* (yasá- *to know* = stem; -p *desiderative* = 1011; -i *first person singular* = 1211).

A minimum Class C form is stem plus Suffix 2020, thus: šinámpaŋki *hit!* (šinámpa- *to hit* = stem; -ŋki *imperative* = 2021).

Class D in its minimum form is comprised of stem plus Suffix 3011 or stem plus Suffix 3012 plus Suffix 3112. For example: ístanta *help me* (ísta- *to help* = stem; -nta *first person objective* = 3011); kamánінčpa *don't tell him* (kamána- *to tell* = stem; -inč *second person objective* = 3012; -pa *potential* = 3112).

3.2. Many specific restrictions apply, however, to the permitted sequences of the class expanding these verbs, wherein the choice of one particular member of obligatory Set 500 of Construction IA limits severely the range of choice of the expanding set or sets of that construction.

These further restrictions are in part explainable on semantic grounds, but include many arbitrary blocks not of this nature. To aid the reader in obtaining a general understanding of the range and kind of restrictions which will be explicated in succeeding paragraphs, we begin with an illustrative set of alternate formulas; in the first the choice of Suffix 542 *current* or Suffix 521 *incomplete* limits the 800 and 700 expansions to the Suffixes 811 *locative* or 812 *intensive* along with Suffix 711 *recent*; in the second, the initial choice of obligatory Suffix 541 *indicative* limits the expansion to the 800's, ruling out the occurrence of Suffix 711; and in the third, the choice of Suffix 522 prevents the use of Suffix 811 in the preceding expansion.

3.2.1. In the formulas for independent indicative verbs, optional suffixes which precede obligatory Class 500 are called the first expansion. Those which follow are called the second expansion. The procedure in giving examples will be first to show suffixes in the first expansion with each of the class of relevant obligatory suffixes. In doing so, the optional suffix nearest the stem is illustrated first, then the optional suffix next in order to the stem, then the second optional suffix with whatever suffix or suffixes may precede it, in occurrence with each of the obligatory suffixes in the formula. Secondly, each of the obligatory suffixes is shown with the second expansion. The second expansion, unlike the first, has only one set of suffixes, which may all occur at once, though they do not always do so. Examples are chosen so as to illustrate the most frequently occurring sequences in the second expansion; not all possible permutations of suffixes are illustrated. Thirdly, examples are given of each of the obligatory suffixes of Class 500 with suffixes from both the first and second expansions.

Now will follow the three formulas referred to above, with their examples.

3.2.1.1 Formula 1 represents the first set of restrictions: Stem ± 811/812 ± 711 + 542/521 ± 511 ± 311 + 200 ± 111. Examples showing occurrences of Suffix 811 with Suffix 542 and Suffix 521, using the verb stem -šá *to kill* (*animal killer as subject*):[2] ša-ká-r-o *it kills over there* (S ± 811 + 542 + 213); ša-ká-č-o *it will kill over there* (S ± 811 + 521 + 213).

Examples of Suffix 812 with Suffix 542 and Suffix 521 using the verb stem tsiyáta- *to talk*: tsiyáta-mpa-r-o *he talks enthusiastically* (S ± 812 + 542 + 213); tsiyáta-mpa-č-o *he will talk enthusiastically* (S ± 812 + 521 + 213).

Examples of Suffix 711 with Suffix 542

[2] For the phonemic shape of the norms of these morphemes, see the charts where they are listed; for allomorphic shapes see **5**. Hyphens separate morphemes; the zero alternant of Suffix 213 may be identified by its index number in italics.

and Suffix 521, with and without Suffixes of Class 800, again using the verb stem šá- *to kill:* šá-ya-r-o *it just now killed* (S ± 711 + 542 + 213); šá-y-č-o *it will soon kill* (S ± 711 + 521 + 213); ša-ká-ya-r-o *it just now killed over there* (S ± 811 ± 711 + 542 + 213); ša-ká-y-č-o *it will soon kill over there* (S ± 811 ± 711 + 521 + 213); šá-mp-ee-r-o *it recently killed violently* (S ± 812 ± 711 + 542 + 213); šá-mp-ee-č-o *it will really kill soon* (S ± 812 ± 711 + 521 + 213).

Examples of Suffix 542 and Suffix 521 with the second expansion using the verb stem tá- *to be:* ta-r-í-ya *he is* (S + 542 + 213 ± 111); tá-r-amant-iš *you are* (S + 542 ± 111 + 212);[3] tá-č-t-a-na *I will be* (S + 521 ± 311 + 211 ± 111); tá-r-ša-t-i-ya *he is there now* (S + 542 ± 511 ± 311 + 213 ± 111); tá-č-ša-t-i-ya *he will be there then* (S + 521 ± 511 ± 311 + 213 ± 111).

Examples with the first and the second expansions, first with Suffix 542, then with Suffix 521: tsiyáta-mpa-r-ša-t-ani-ya *we do talk enthusiastically then* (S ± 812 + 542 ± 511 ± 311 + 214 ± 111); ša-ká-ya-r-i-ya *it just now killed over there* (S ± 811 ± 711 + 542 + 213 ± 111); tá-ya-nč-ša-t-a-na *I have stayed there then* (S ± 711 + 522 ± 511 ± 311 + 211 ± 111); tsiyáta-mpa-ya-nč-t-ič *one would soon talk enthusiastically* (S ± 812 ± 711 + 522 ± 311 + 217).

3.2.1.2. Formula 2 shows the particular restrictions imposed by Suffix 541, not only on the first expansion, but also on the second expansion. Suffixes 511 and 311 do not occur in this combination with Suffix 541. Stem ± 811/812 + 541 + 200 ± 111.

The first examples show Suffix 811 in occurrence with Suffix 541, using the verb stem káča- *to wash clothes:* káča-kaa-t-o *she is over there washing clothes* (S ± 811 + 541 + 213); káča-kaa-t-i-ya *she certainly is over there washing clothes* (S ± 811 + 541 + 213 ± 111).

[3] For the special order of allomorph -amant of Suffix 111 see Section 5.

Now Suffix 812 is shown with Suffix 541: káča-mpa-k-iš *you wash clothes vigorously* (S ± 812 + 541 + 212); káča-mpa-k-i-ya *she certainly washes clothes with vigor* (S ± 812 + 541 + 213 ± 111).

3.2.1.3. Suffix 522 sets the restrictions in Formula 3, thus: Stem ± 812 ± 711 + 522 ± 511 ± 311 + 200 ± 111.

Examples of Suffix 812 with Suffix 522 using the verb stems kapéeta- *to throw away* and tipá- *to carry water:* kpíta-mpa-nč-o *he completely threw it away* (S ± 812 + 522 + 213); tipá-mpa-nč-ana *they carried a lot of water* (S ± 812 + 522 + 216).

Examples of Suffix 711 with Suffix 522: kapít-ee-nč-o *he recently threw it away* (S ± 711 + 522 + 213); tipá-ya-nč-o *recently she has carried water* (S ± 711 + 522 + 213); kapéeta-mpa-ya-nč-o *he recently threw it completely away* (S ± 812 ± 711 + 522 + 213); tipá-mpa-ya-nč-o *recently she has carried a lot of water* (S ± 812 ± 711 + 522 + 213).

Examples of Suffix 522 with the second expansion: kapíta-nč-t-a-na *I definitely threw it away* (S + 522 ± 311 + 211 ± 111); kapíta-nč-ša-t-a-na *then I definitely threw it away* (S + 522 ± 511 ± 311 + 211 ± 111); tipá-mpa-ya-nč-ša-t-ani-ya *we soon then carried a lot of water* (S ± 812 ± 711 + 522 ± 511 ± 311 + 214 ± 111).

3.2.2. We now give a further set of formulas with their expansion restrictions and illustrate them. This set gives the remaining details of the restrictions based on occurrence of Set 500.

3.2.2.1. Suffixes 541 and 522 may be preceded by Suffix 611 as seen in Formula 4: S ± 812 ± (± 712 + 611) + 541/522 ± 511 ± 311 + 200 ± 111.

With the second formula Suffix 812 was shown with Suffix 541, and with the third formula with Suffix 522. Examples of those occurrences will not be repeated here, since the mutual relationship of these suffixes is the same in Formula 4.

Examples of Suffix 611 with Suffix 541 using the verb stem kčóŋka- *to paddle:*

kčóŋka-raŋ-k-i *I paddled* (S ± 611 + 541 + 211); kčóŋk-ta-raŋ-k-iš *that time you paddled* (S ± [± 712 + 611] + 541 + 212); kčóŋka-mpa-ta-raŋ-k-o *that time he paddled vigorously* (S ± 812 ± [± 712 + 611] + 541 + 213); kčóŋka-mpa-raŋ-k-ini *we paddled vigorously* (S ± 812 ± 611 + 541 + 214).

Examples of Suffix 611 with Suffix 522 using the verb stem tsíipa- to disappear: tsíipa-ra-nč-is *you* (plural) *have disappeared* (S ± 611 + 522 + 215); tsíipa-ta-ra-nč-is *the time you had disappeared* (S ± [± 712 + 611] + 522 + 215); tsíipa-mpa-ra-nč-is *you had completely disappeared* (S ± 812 ± 611 + 522 + 215); tsíipa-mpa-ta-ra-nč-is *the time you had completely disappeared* (S ± 812 ± [± 712 + 611] + 522 + 215).

Examples of the second expansion with Suffix 611, first with Suffix 541, then with Suffix 522: tsíipa-raŋ-k-ša-t-a-na *then I did disappear* (S ± 611 + 541 ± 511 ± 311 + 211 ± 111); tsíipa-raŋ-k-t-a-na *I did disappear* (S ± 611 + 541 ± 311 + 211 ± 111); tsíipa-ra-nč-t-iš *you did disappear* (S ± 611 + 522 ± 311 + 212); tsíipa-ra-nč-ša-t-iš *then you did disappear* (S ± 611 + 522 ± 511 ± 311 + 212).

3.2.2.2. Formula 5 has as its basis the occurrence of Suffix 541 with Suffix 521: Stem ± 541 + 521 + 200 ± 111. Examples, using the verb stems siná- *to rain* and sowá- *to run away:* sináa-k-č-i-ya *it is raining* (S ± 541 + 521 + 213 ± 111); sowáa-k-č-i-ya *he is running away* (S ± 541 + 521 + 213 ± 111).

3.2.2.3. Suffix 511 in the obligatory position may occur with any allowed combination of suffixes in the first expansion, as seen in Formula 6: Stem ± (± 811/812 ± 711) / ± (± 812 ± [± 712 + 611]) + 511 ± 311 + 200 ± 111.

Examples of Suffixes 811, 812 and 711 with Suffix 511, using the verb stem sowá- *to run away:* sowá-ka-š-a *he runs far away then* (S ± 811 + 511 + 213); sowá-mpa-š-i *I completely run away then* (S ± 812 + 511 + 211); sowá-ya-š-a *he immediately runs away then* (S ± 711 + 511 + 213); sowá-ka-ya-š-a *he immediately runs far away then* (S ± 811 ± 711 + 511 + 213); sowá-mpa-ya-š-ini *we soon, then, ran completely away* (S ± 812 ± 711 + 511 + 214).

Examples of Suffixes 712 and 611, with and without Suffix 812, with Suffix 511 using the verb stem: siríta- *to sew:* siríta-ran-š-a *she sewed then* (S ± 611 + 511 + 213); siríta-ta-ran-š-iš *you sewed that time then* (S ± [± 712 + 611] + 511 + 212); siríta-mpa-ta-ran-š-i *I sewed it up that time* (S ± 812 ± [± 712 + 611] + 511 + 211).

Examples of Suffixes 311 and 111 with Suffix 511, using the verb stem patáata- *to work:* patáata-ša-t-iš *you work then* (S + 511 ± 311 + 212); patáata-š-i-na *I work then* (S + 511 + 211 ± 111); patáata-š-ini-ya *we do work then* (S + 511 + 214 ± 111).

Examples of S ± 812 ± 711 + 511 ± 311 + 211 ± 111: siríta-mpa-ya-ša-t-a-na *I sewed it up then:* patáata-mpa-ya-ša-t-a-na *I did work vigorously then.*

Examples of S ± 611 + 511 + 214 ± 311 ± 111: siríta-ran-ša-t-ani-ya *we certainly did sew then;* patáata-ran-ša-t-ani-ya *we certainly did work then.*

3.2.2.4. Each of the suffixes of Class 530 within obligatory Class 500 occurs only in a few sequences peculiar only to that suffix, so each requires a separate formula or set of formulas.

3.2.2.4.1. Formulas 7 and 8 for Suffix 531: Stem ± 811/542 + 531 ± 712 + 511 + 200; Stem ± 541 + 531 + (+ 511 + 200)/ + (+ 521 + 200 ± 111).

Examples, using the verb stem yasée- *to sing:* yasée-ka-ma-t-š-a *he will sing for a while over there then* (S ± 811 + 531 ± 712 + 511 + 213); yasée-ra-ma-t-š-is *you* (plural) *sang for a while then* (S ± 542 + 531 ± 712 + 511 + 215); yasée-ka-m-č-i-ya *he will be singing for a while over there* (S ± 811 + 531 + 521 + 213 ± 111); yasée-m-č-i-ya *it will be sung* (S + 531 + 521 + 213 ± 111); yasée-m-š-a *it is sung then* (S + 531 + 511 + 212).

3.2.2.4.2. Formulas 9 and 10 for Suffix 532: Stem ± 711 + 532 + 200 ± 111; Stem + 532 ± (± 712 + 311) + 200.

Examples, using the verb stem patáata- *to work:* patáata-šin-i *I returned from working* (S + 532 + 211); patáat-ee-šin-i-na *I just now returned from working* (S ± 711 + 532 + 211 ± 111); patáata-šini-ta-t-iš[4] *at the time you returned from working* (S + 532 ± [± 712 + 311] + 212).

3.2.2.4.3. Formula 11 for Suffix 533: Stem + 533 ± 521 ± 511 ± 311 + 200 ± 111.

Examples, using the verb stem tanó- *to cry:* tanó-tar-o *he usually cries* (S + 533 + 213); tanó-tara-č-i-ya. *he was crying* (S + 533 ± 521 + 213 ± 111); tanó-tar-ša-t-i-ya *then he cries as usual* (S + 533 ± 511 ± 311 + 213 + 111).

3.2.2.4.4. Formula 12 for Suffix 534: Stem ± 811 + 534 ± 521 + 200 ± 111.

Examples, using the verb stem tsipáa- *to die:* tsipáa-ts-iš *you could die* (S + 534 + 212); tsipáa-ts-č-i *I am about to die* (S + 534 ± 521 + 211); tsipáa-ka-ts-ča *he is over there almost to die* (S ± 811 + 534 + *213* ± 111).

3.2.2.5. Formulas 13 and 14 represent optional expansions of certain minimum Class A sequences by use of Suffix 113 *negative* or suffix 114 *interrogative.*

3.2.2.5.1. Formula 13 is: Stem + 540/533/520 + 200 ± 113.

Examples, using the verb stem waráta- *to fight:* warát-k-ee-ši *I don't fight* (S + 541 + 211 ± 113); waráta-r-ee-ši *I didn't fight* (S + 542 + 211 ± 113); warát-tar-ee-ha *he doesn't customarily fight* (S + 533 + 213 ± 113); warát-č-ee-ha *he won't fight* (S + 521 + 213 ± 113); waráta-nč-ee-ha *he has not fought* (S + 522 + 213 ± 113).

3.2.2.5.2. Formula 14 is: Stem + 540/520 + 200 ± 114.

Examples, using the verb stem tanó- *to cry:* and the attributive form máyamšta *why:* máyamšta tanóo-k-š-a *Why do you cry?* (S + 541 + 212 ± 114); máyamšta tanó-r-š-a *Why did you cry?* (S + 542 + 212 ± 114); máyamšta tanó-č-s-a *Why will you (plural) cry?* (S + 521 + 215 ± 114); máyamš-ta tanó-nč-s-a *Why have you (plural) cried?* (S + 522 + 215 ± 114).

3.2.2.6. The minimum form represented by the formula Stem 213/214/216 + 112 has its expanded form represented in Formulas 15 and 16. Suffix 112 has a unique distribution. The seeming structural and semantic gap in this sequence where Suffixes 211, 212, and 215 would be expected to occur as do the person Suffixes 213, 214 and 216 is filled by the occurrence of Suffix 3011 and Suffix 3012 with Suffix 3112 in the independent optative verbs. It will also be noted in the examples to follow that most sequences of suffixes which occur with Suffix 112 carry a meaning beyond that of the total meaning of the suffixes themselves.

Suffix 216 is restricted in occurrence with Suffix 112 to the minimum form Stem + 216 + 112, thus: waráto-sina-pa *look out, they're fighting* (waráta- *to fight*).

3.2.2.6.1. Formula 15 with Suffix 213: Stem ± 533 / ± (± 711/541 + 521) / ± (+ 521 ± 512) / ± 311 + 213 + 112.

Examples, using the verb stems múči- *to burn* and mósa- *to cook:* múč-tar-pa *be aware that it ordinarily burns* (S ± 533 + *213* + 112); múč-ee-čee-pa *it is likely to burn soon* (S ± [± 711 + 521] + *213* + 112); múč-ka-č-pa *it is burning!* (S ± [± 541 + 521] + *213* + 112); múči-č-pa *be careful, it is going to burn* (S ± 521 + *213* + 112); mósse-ma-pa *let it cook first* (S ± 512 + *213* + 112); móss-ta-pa *don't let it cook* (S ± 311 + *213* + 112).

3.2.2.6.2. Formula 16 with Suffix 214 is: Stem ± 521 + 214 + 112.

Examples of S + 214 + 112: námpo-nee-pa *they might scold us* (námpa- *to scold*); šinámpo-nee-pa *they might hit us* (šinámpa- *to hit*).

Examples of S ± 521 + 214 + 112: kós-č-ini-pa *we are about to arrive* (kósa- to

[4] Suffix 712 may leave its usual linear order to directly precede Suffix 311.

arrive); katóŋk-č-ini-pa *we are about to eat* (katóŋka- *to eat*).

3.2.3. The minimum Class B sequence of Stem + 1010 + 1210 represents the total distribution of Suffix 1012. It may be expanded with Suffix 1011, however, in Formula 13: Stem + 1011 ± 1311 + 1210 ± 1111.

Examples of Suffix 1011 using the verb stem katóŋka- *to eat:* katóŋk-p-i *I want to eat* (S + 1011 + 1211); katóŋk-pi-t-a-na *I certainly do want to eat* (S + 1011 ± 1311 + 1211 ± 1111); katóŋk-pi-t-o *he does want to eat* (S + 1011 ± 1311 + 1213).

Examples of Suffix 1012 using the verb stem yasá- *to know:* yasá-ŋks-i *I would like to know* (S + 1012 + 1211); yasá-ŋks-ani *we would like to know* (S + 1012 + 1213).

3.2.4. The Class C minimum obligatory sequence was illustrated in Section **3.1.** Optional expansions are represented in Formulas 14 and 15: Stem + 2021 ± 2011; Stem + 2020 ± 2512 ± 2012/2013.

Examples, using the verb stem mášana- *to hear* or *listen:* mášana-ŋk-tsa *you (plural) listen!* (S + 2021 ± 2011); mášana-ŋka-masi *listen first* (S + 2021 ± 2512); mášana-ŋk-si *you may listen* (S + 2021 + 2012); mášana-ŋk-ints *you (plural) may listen* (S + 2021 ± 2013); mášana-šini-masi *go listen first* (S + 2022 ± 2512); mášana-šini-mas-ints *you (plural) may go and listen first* (S + 2022 ± 2512 ± 2013).

3.2.5. Class D minimum sequences were also illustrated in Section **3.1.** Formulas 16–18 cover the relevant expansion restrictions: Stem ± 3711 + 3011 ± 3112; Stem + 3542 + (+ 3011 ± 3112) / (+ 3012 + 3112); Stem ± 3521 + 3012 + 3112.

Examples, using the verb stem paná- *to give:* paná-ya-nta *he just now gave it to me* (S ± 3711 + 3011); paná-ro-nta-ma *he might give it to me* (S ± 3542 + 3011 ± 3112); paná-r-inč-pa *don't give it to him* (S ± 3542 + 3012 + 3112); paná-č-inč-pa *I will give it to you* (S ± 3521 + 3012 + 3112).

4. Verb Charts IIA and IIB, like the charts for the independent verbs, do not show the restrictions in distribution of affixes of dependent verbs. Those restrictions will be discussed in this section.

4.1. The restrictions for dependent conditional verbs relevant to obligatory components are similar to those for independent indicative verbs, but with the exception that Suffix 4513 *conditional* is always required in the former. The following formulas represent the restrictions of minimum obligatory sequences for constructions IIA and IIB.

Class IIA Stem + 4540/4530/4520 + 4513 + 4200

Class IIB Stem + 5011/5712

These formulas read as follows: Class A in its minimum form is comprised of stem plus some one suffix of Subclasses 4540–4520 plus Suffix 4513 plus some one suffix from Class 4200. For example: pansákori *if I fall* (pansá- *to fall* = stem; -k *indicative* = 4541; -o *conditional* = 4513; -ri *first person singular* = 4211); tonónaroni *when we push* (tonóna- *to push* = stem; -r *current* = 4542; -o *conditional* = 4513; -ni *first person plural* = 4214); tanótaro *if he cries as usual* (tanó- *to cry* = stem; -tar *habitual* = 4533; -o *conditional* = 4513; -∅ *third person singular* = 4211); stánčori *when I had laughed* (stá- *to laugh* = stem; -nč *complete* = 4522; -o *conditional* = 4513; -ri *first person singular* = 4211).

Class B in its minimum form is comprised of stem plus Suffix 5011 or Suffix 5712. This will be illustrated in **4.3.**

4.2. The specific restrictions which apply to the permitted sequences of the class expanding dependent conditional verbs are the same for all of those suffixes which are duplicated on the independent indicative chart. The addition of Suffix 4411 and the omission of Suffixes 511 and 111 change the possible expansions following the suffixes of Classes 500 and 200.

4.2.1. Now follows Formula 19, the first formula under dependent verbs; note its similarity to Formula 1: Stem ± 4811/

4812 ± 4711 + 4542/4521 + 4513 ± (+ 4411 + 4311) + 4200.

Examples, using the verb stem sowá- *to run away:* sowá-ka-r-o-š *when you ran far away* (S ± 4811 + 4542 + 4513 + 4212); sowá-mpa-č-o-ri *if I run completely away* (S ± 4812 + 4521 + 4513 + 4211); sowá-ka-ya-r-o-š *as soon as you have run completely away* (S ± 4811 ± 4711 + 4542 + 4513 + 4212); sowá-mpa-ya-r-o-ri *as soon as I have run completely away* (S ± 4812 ± 4711 + 4542 + 4513 + 4211); sowá-č-o-rii-t-o *just at the time when he runs away* (S + 4521 + 4513 ± [+4411 + 4311] + 4213).

4.2.2. The second formula for dependent conditional verbs, Formula 20, is: Stem ± 4811/4812 + 4541 + 4513 + 4200.

There is no expansion following Suffix 4513. Examples, using the verb stem káča- *to wash clothes:* káča-kaa-t-o-ri *when I am over there washing clothes* (S ± 4811 + 4541 + 4513 + 4211); káča-mpa-k-o-ri *when I vigorously wash clothes* (S ± 4812 + 4541 + 4513 + 4211).

4.2.3. The third formula for dependent conditional verbs, Formula 21, is: Stem ± 4812 ± 4711 + 4522 + 4513 ± (+ 4411 + 4311) + 4200.

Examples, using the verb stem kapéeta- *to throw away:* kapíta-nč-o-ri *when I had thrown it away* (S + 4522 + 4513 + 4211); kpíta-mpa-nč-o-ri *when I had completely thrown it away* (S ± 4812 + 4522 + 4513 + 4211); kpíta-nč-o-rii-t-i *at the very time I threw it away* (S + 4522 + 4513 ± [+ 4411 + 4311] + 4211); kapéet-ee-nč-o-ri *as soon as I had thrown it away* (S ± 4711 + 4522 + 4513 + 4211); kapéeta-mpa-ya-nč-o-ri *as soon as I had completely thrown it away* (S ± 4812 ± 4711 + 4522 + 4513 + 4211); kapéet-ee-nč-o-rii-t-i *just as soon as I had completely thrown it away* (S ± 4711 + 4522 + 4513 ± [+ 4411 + 4311] + 4211).

4.2.4. The fourth dependent formula, Formula 22, is: Stem ± 4812 ± (± 4712 + 4611) + 4541/4522 + 4513 ± (+ 4411 + 4311) + 4211.

Examples, first with Suffix 4541, using the verb stem iwápo- *to finish:* iwápo-raŋ-k-o-ni *when we finished* (S ± 4611 + 4541 + 4513 + 4214); iwápo-mpa-raŋ-k-o-ri *when I completely finished* (S ± 4812 ± 4611 + 4541 + 4513 + 4211): iwápo-raŋ-k-o-rii-t-i *at the very time I finished* (S ± 4611 + 4541 + 4513 ± [+ 4411 + 4311] + 4211).

Examples with Suffix 4522 using the verb stem tsíipa- *to disappear:* tsíipa-ra-nč-o *if he had disappeared* (S ± 4611 + 4522 + 4513 + *4213*); tsíipa-ta-ra-nč-o *at the time when he had disappeared* (S ± [± 4712 + 4611] + 4522 + 4513 + *4213*); tsíipa-mpa-ra-nč-o *if he had completely disappeared* (S ± 4812 ± 4611 + 4522 + 4513 + *4213*); tsíipa-ra-nč-o-rii-t-o *just when he had disappeared* (S ± 4611 + 4522 + 4513 ± [+ 4411 + 4311] + 4213).

4.2.5. The fifth dependent formula is Formula 23: Stem ± 4541 + 4521 + 4513 ± (+ 4411 + 4311) + 4200.

Examples, using the verb stem siná- *to rain:* sináa-k-č-o *when it is raining* (S ± 4541 + 4521 + 4513 + *4213*); pansáa-k-č-o-rii-t-i *at the very time I fall* (S ± 4541 + 4521 + 4513 ± [+ 4411 + 4311] + 4211).

4.3. Expansions for nonpersonal dependent verbs beyond the minimum obligatory components of stem plus Suffix 5011 or Suffix 5712 are restricted to the optional addition of Suffix 5511 following Suffix 5011. Note Formula 24: Stem + 5011 ± 5511.

In all the examples to follow, the independent verb áškiya *thus he does* will occur with the dependent verb.

Examples of S + 5712: pansá-ta áškiya *fall, thus he does* (pansá- *to fall*); pamáŋk-ta pamáŋk-ta áškiya *swim, swim, thus he does* (pamáŋka- *to swim*).

Examples of S + 5011: nápa-mama áškiya *to look, thus he does* (nápa- *to look*); ná-mama áškiya *to go, thus he does* (ná- *to go*).

Examples of S + 5011 ± 5511: nápa-

mam-ša áškiya *to look, then, thus he does;* ná-mam-ša áškiya *to go then, thus he does.*

5. Most morpheme alternants are morphologically defined. However, there is some phonological alternation. A stress pattern in the language that is not yet completely defined affects the forms of some of the suffixes and is described below as nearly as possible in reference to each alternant so affected. When the stress pattern is fully understood, it may be possible to describe by phonological conditioning some of the allomorphs now listed as alternating morphologically.

In the following description the suffixes which have more than one allomorph are listed consecutively beginning with those in Chart IA Column 800. If a suffix has only one form, it is not listed. If a suffix occurs on more than one chart, it is given the number which it has on the first chart on which it occurs. If an allomorph is said to be conditioned by another suffix or suffixes, and all suffixes mentioned also occur on another chart with another class of verbs, the conditioning applies in both places.

5.1. Suffixes on Chart IA with allomorphs: Suffix 811 has allomorphs -ka ∞ -kaa. Allomorph -kaa precedes Suffix 541; allomorph -ka occurs elsewhere.

Suffix 812 has allomorphs -mpa ∼ -mp. Allomorph -mp follows stems with stressed final vowel; allomorph -mpa occurs elsewhere.

Suffix 711 has allomorphs -ee ∼ (-ya ∞ -y). Allomorph -ee immediately follows stems with unstressed final vowel, with accompanying loss of the stem final vowel, or it follows -mp allomorph of Suffix 812. Other than in these circumstances, allomorph -y precedes Suffix 521 except when in sequence also with Suffix 112. Alternate -ya occurs in all other places.

Suffix 712 has allomorphs -ta ∞ -t. Allomorph -t follows Suffix 531; allomorph -ta occurs elsewhere.

Suffix 611 has allomorphs -ran ∼ -ra ∼ -raŋ. Allomorph -ra results when the final alveolar nasal consonant is lost preceding the initial alveolar nasal consonant of Suffix 522. Allomorph -raŋ results when the alveolar nasal of Suffix 611 is replaced by velar nasal preceding velar -k of Suffix 541. (/ŋ/ occurs only before /k/, but /nk/ and /ŋk/ both occur and contrast.) Unconditioned allomorph -ran occurs elsewhere.

Suffix 541 has allomorphs (-k ∼ -ka) ∞ -t. Allomorph -t follows Suffix 811. Allomorph -ka occurs following unstressed Suffix 611 or precedes Suffix 521 when it occurs in sequence with zero allomorph of Suffix 213.

Suffix 542 has allomorphs -r ∞ -ra ∞ -ro. Allomorph -ra precedes Suffix 531; allomorph -ro precedes Suffix 3011; allomorph -r occurs elsewhere.

Suffix 531 has allomorphs -ma ∼ -m. Allomorph -m follows stressed syllables; allomorph -m occurs elsewhere.

Suffix 532 has allomorphs -šini ∞ -šin. Allomorph -šini precedes Suffix 712 + 311. Allomorph -šin occurs elsewhere.

Suffix 533 has allomorphs -tar ∞ -tara. Allomorph -tara precedes Suffix 521; allomorph -tar occurs elsewhere.

Suffix 521 has allomorphs -č ∞ -čee. Allomorph -čee follows Suffix 711 preceding zero allomorph of Suffix 213. Allomorph -č occurs elsewhere.

Suffix 511 has allomorphs -ša ∞ -š. Allomorph -ša precedes Suffix 311. Allomorph -š occurs elsewhere.

Suffix 512 has allomorphs -masi ∞ -mas ∞ -ma. Allomorph -masi occurs word finally. Allomorph -ma occurs in sequence with Suffix 213 + 112. Allomorph -mas occurs elsewhere.

Suffix 311 has allomorphs -t ∞ -ta. Allomorph -ta precedes zero allomorph of suffix 213, with some stems. Allomorph -t occurs elsewhere.

Suffix 211 has allomorphs -i ∞ -ri ∞ -ee ∞ -a. Allomorph -ri follows Suffix 4513. Allomorph -ee precedes Suffix 113. Allo-

morph -a follows Suffix 311, except word finally. Allomorph -i occurs elsewhere.

Suffix 212 has allomorphs -iš ∞ -š. Allomorph -š occurs word finally following Suffix 4513, or it precedes Suffix 114. Allomorph -š occurs elsewhere.

Suffix 213 has allomorphs -o ∞ -i ∞ -ee ∞ -a ∞ -#. Allomorph -i precedes Suffix 111. Allomorph -ee precedes Suffix 113. Allomorph -a occurs word finally following Suffix 511 or Suffix 512, or it occurs in sequence with Suffix 534 and 111. Allomorph # occurs word finally following Suffix 4513, or it precedes Suffix 112 or Suffix 114. Allomorph -o occurs elsewhere.

Suffix 214 has allomorphs -ini ∞ -ani ∞ -ni ∞ -nee. Allomorph -ni follows Suffix 4513. Allomorph -nee immediately follows the stem when preceding Suffix 112. Allomorph -ani follows Suffix 541 when it is immediately preceded by a vowel, or it follows Suffix 311 or Suffix 1012. Allomorph ini occurs elsewhere.

Suffix 215 has allomorphs -is ∞ -s. Allomorph -s occurs elsewhere.

Suffix 216 has allomorphs -ana ∞ -sina ∞ -sinčina. Allomorph -sina occurs between the stem and Suffix 112. Allomorph -sinčina precedes Suffix 113. Allomorph -ana occurs elsewhere.

Suffix 217 has allomorphs -ič ∞ -č. Allomorph -č follows Suffix 4513 or precedes Suffix 114. Allomorph -ič occurs elsewhere.

Suffix 111 has allomorphs -ya ∞ -na ∞ -amant ∞ -ča. Allomorph -na follows Suffix 211. Allomorph -amant is phonologically a clitic which is in complementary distribution with non-clitic forms of Suffix 111; it occurs with Suffixes 212, 215 and 217, but it immediately precedes rather than follows them. Allomorph -ča is also phonologically a clitic and occurs as an allomorph of Suffix 111 following Suffix 213 when Suffix 213 occurs in sequence with Suffix 511. Allomorph -ya occurs elsewhere.

Suffix 112 has allomorphs -pa ∞ -ma. Allomorph -ma follows Suffix 211; allomorph -pa occurs elsewhere.

Suffix 113 has allomorphs -ši ∞ -ha. Allomorph -ha follows Suffix 213 and Suffix 216. Allomorph -ši occurs with other suffixes, but in a special order, preceding the affixes of Class 200.

Suffix 114 has allomorphs -a ∞ #. Allomorph # occurs with Suffix 211 and Suffix 214; allomorph -a occurs elsewhere.

5.2. Further suffixes, seen on Chart IB, with more than one allomorph:

Suffix 1011 has allomorphs -pi ∞ -p. Allomorph -p precedes suffixes of Class 200; allomorph -pi occurs elsewhere.

5.3. Further suffixes, seen on Chart IC, with more than one allomorph: Suffix 2021 has allomorphs -ŋki ∞ -ŋka ∞ -ŋk. Allomorph -ŋka precedes Suffix 2512; allomorph -ŋk precedes Suffixes 2011 and 2013. Allomorph -ŋki occurs elsewhere.

Suffix 2022 has allomorphs -šini ∞ -šin. Allomorph -šin precedes Suffixes 2012 and 2013; allomorph -šini occurs elsewhere.

HIERARCHICAL STRUCTURING OF AMUZGO GRAMMAR

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0. Introduction
1. Language type
2. Utteremes and grammemes
3. Structure of the emic noun phrase
4. Verb and attributive parallels
5. Summary

0. Various approaches have been taken in recent years to the analysis of the structure of language. One of the newest methods is presented by Pike in his Language in Relation to a Unified Theory of the Structure of Human Behavior. The Amuzgo language of Guerrero, Mexico, will be analyzed from this point of view.

Basic to the entire theory is the distinction between an emic and an etic standpoint. The emic approach is a structural one, dealing with the patterned system within one particular language or culture, while the etic approach involves a procedure of non-structural classification. Etic distinctions within a specific language therefore would be differences which are not structurally relevant.

Another important principle involved in Pike's approach is the hierarchical structuring of all activity. In this way an entire structure may be viewed successively as smaller emic wholes which have a part in larger emic wholes. One of these hierarchical structurings is the phonological one, in which the phoneme constitutes part of a syllable which in turn constitutes part of a stress group which in turn constitutes part of a breath group. Our present paper will not deal with this hierarchy nor with its potential interpenetration and occasional co-terminal relationships with the grammatical hierarchies.[1]

A second hierarchy is that of the lexicon items and their expanded forms. This begins with the morpheme as the minimum unit, pyramids to specific morpheme clusterings as immediate constituents of higher forms. These in turn pyramid to still higher forms, which may be called words in some languages. Still higher forms may constitute phrases pyramiding to utterances and on to specific poems, essays, stories, or the like.

A third hierarchy has to do with the structural constituents, involving immediate constituent groupings at various hierarchical levels. The units of this hierarchy consist of spot-class correlatives, or in simpler terms, particular function spots with their appropriate fillers. The minimum unit, with fillers comprised of morphemes is called the grammeme (on a level with phoneme and morpheme as minimal units of the phonological and lexical hierarchies). Thus, in a particular grammeme, the morpheme filler of the spot is the manifestation of the grammeme. The hierarchy proceeds upward by sequences of grammemes, constituting hypergrammemes or grammeme sequences, which in turn enter higher-layered hypergrammemes such as sentence types or utteremes. These in turn enter still larger structures such as literary art forms including poems and so on.

The preceding hierarchies are all of a sequence type. There is another type to which we must give attention in this paper, how-

[1] The reader may like to have for reference, however, the following list of tentative phonemes in Amuzgo: p, b, t, d, k, ʔ, h, b̥ s, š, r, ř, l, m, n, ñ, w, y, i, e, æ, a, ɔ, o, u, ę, ą̣, ą, ʔ. In addition, tone is phonemic in Amuzgo. Tone is indicated in this paper by numbers, from 1 (for the lowest) to 4 (for the highest). Glides are indicated by two numbers joined by a hyphen. However, it must be stressed that the tone analysis with its many complex patterns of perturbation has not been completed at this point, and therefore the tone written here is phonetic rather than phonemic.

ever, which has to do with classes of units. Specifically, classes of morphemes may constitute subclasses within higher-layered classes and these in turn may constitute subclasses of still larger classes or hyperclasses. Similarly, morphemically complex members of morpheme-hypermorpheme classes may constitute subclasses of these still larger classes. Eventually, at the higher layers of classes, such elements as specific poems might constitute members of hyperclasses of poems and the like.

This particular paper deals with the latter three types of hierarchies with major attention upon noun classes. These lend themselves to initial analysis. These also serve by analogy to show the reader the general nature of the class structure of the language, since other class groupings have similar pyramided hierarchies to that of the noun and the noun phrase.

1. Amuzgo has as its predominant pattern the characteristics represented in one of the schematic class types set up by Pike, specifically that one which he calls Type B″. In such a type there are two or more major classes containing emic subclasses which operate grammatically in ways analogous to minor classes.[2] This contrasts with languages of Pike's schematic Type A, which have a single major class but minor classes such as Tagalog of Polynesia, and also with schematic Type C, such as Turkish or Aztec in which there is a basic sharp Morphology-Syntax division.[3]

Amuzgo, therefore, is comprised of nuclear elements with peripheral satellitic elements entering larger and larger hierarchically structured groups in which there is no sharp border of "isolatability" as a word criterion, nor units comprised of stems plus a number of affixes.[4] Hence the reader may note that we begin with morphemes and pyramid directly to phrases and on to utteremes in this paper, by-passing the concept of an affixually complex word.[5] In **5.3** we shall return to this problem.

2. In order to appreciate the details of this hierarchical structuring of immediate constituents, the utteremes of Amuzgo will be presented first, supplying a framework for reference in the remaining discussion. Following this, the grammeme units which combine the utteremes will be briefly discussed in relation to their general characteristics.

2.1. We turn therefore to the major utterance types (or utteremes) of Amuzgo. The uttereme is a verbal emic unit which is recognized by the participants as having beginning, ending, and purposive elements.[6] The seven major utterance types in the language may be stated in the following formulas, showing first the minimum and then the

[2] There are in Amuzgo a few minor classes supplementing the major classes, but the basic pattern is class Type B″. These minor classes fall into two general categories. The first constitutes those morphemes which manifest included grammemes within phrases in a modification relationship, such as tense, mode, and intensity indicators. The other group consists of minor classes which function independently, such as connectors, emphatics, and a question indicator. These minor classes simply supplement the three major classes of Amuzgo. The major classes fill most of the basic grammemic spots in the utteremes of the language. Even the morphemes which in English introduce questions (such as why, what, and how), function as members of the noun class rather than forming an additional minor class.

[3] Another such language with a sharp Morphology-Syntax dichotomy is Cashibo of eastern Peru. See Olive Shell's article in this issue of IJAL, Cashibo II: Grammemic Analysis of Verbs, for the application of grammemic theory to this language which radically differs in basic structure from Amuzgo.

[4] For the general problem, see Kenneth L. Pike, Language in Relation to a Unified Theory of the Structure of Human Behavior, Summer Institute of Linguistics, Glendale, California, pp. 113, 114, discussing the relationship between schematic class Types B and C.

[5] In the examples given throughout the paper, all morphemes are separated by spaces with the exception of morphemically-complex class members (e.g. see **3.22.14.2**) and fusions (**5.3**).

[6] For further discussion of the uttereme, see Kenneth L. Pike, *op. cit.*, Chapter 5.

potentially expanded form of each uttereme. In each instance, examples of manifesting utterances are given.

Uttereme I: affirmation of activity.[7]

Minimum: +Action (Verb x) + Actor (Noun x).

Potential expansion: +[+action (Verb x) + Actor (Noun x)] ± Goal (Noun x) ± Manner (Attributive x) ± Location-Direction (Location-Direction x) ± Time (Time x) ± Vocative (Noun Bx) ± Attention (Verb A).

In reading these two formulas, note that Uttereme I has one obligatory hypergrammeme, +Action (Verb x) + Actor (Noun x), which may be optionally expanded to include six other grammemes. This hypergrammeme is placed within brackets in the potential expansion in order to represent this unit as the nucleus for expansion. Uttereme I has the structural meaning of "affirmation of activity." Examples of the manifesting utterances of this uttereme are the following: hɔ^{1} *I'm going.* tuę^{4}ʔę^{3} kwi^{3} wʔa^{4} *He arrived at a house* (<tuę^{4}ʔę^{3} *he arrived,* kwi^{3} *one,* wʔa^{4} *house*). ha^{1} hndæ$^{4-1}$ ya^{2} tsma^{2} tsha^{4}m he^{2}ʔ na^{1}mšhɔ$^{2-3}$ *I'm going to sell cotton in the town now, aunt* (<ha^{1} *go,* hndæ$^{4-1}$ *sell,* ya^{2} *first person,* tsma^{2} *cotton,* tsha^{4}m *town,* he^{2}ʔ *now,* na^{1}mšhɔ$^{2-3}$ *my aunt*).

Uttereme II: description of an item.

Minimum: +Description (Attributive x) + Item (Noun x).

Potential expansion: +[+Description (Attributive x) + Item (Noun x)] ± Manner (Attributive x) ± Location-Direction (Location-Direction x) ± Time (Time x).

In Uttereme II the item being described is usually expressed verbally, but occasionally it may be present in the non-linguistic context only. This presents no problem within a theory in which non-linguistic behavior is considered relevant to the description of a language. Examples of Uttereme II are: hę^{4} sku^{1}tsʔa^{3}m yu^{2}sku^{1} *The woman is very pretty* (<hę^{4} *very,* sku^{1}tsʔa^{3}m *pretty,* yu^{2}sku^{1} *woman*). hę^{4} ti^{1}sʔa^{1} ʔu^{3} *You're very naughty* (<hę^{4} *very,* ti^{1}sʔa^{1} *bad,* ʔu^{3} *you*).

Uttereme III: identification of an item.

Minimum: +Identification (Noun x) + Item (Noun x).

Potential expansion: ±State (state) + [+Identification (Noun x) + Item (Noun x)].

Paralleling Uttereme III, the item identified is occasionally not specifically mentioned, but in such cases that which is identified may be readily perceived within the non-linguistic or hyper-utteremic setting, and in this sense, is obligatorily present. Examples of such utterances are: kwa^{1} ka^{4}tsią^{3} *Why, it's a tiger!* (referring to what had previously been thought to be a man) (<kwa^{1} *why,* ka^{4}tsią^{3} *tiger*). kwe^{3}ʔ tšio^{2}ʔ lua^{1} *That's just an armadillo* (<kwe^{3}ʔ *just,* tsio^{2}ʔ *armadillo* lua^{1} *that*).

Uttereme IV: emphatic utterance.

Minimum-Maximum: +Emphasis (Selection) + Non-Emphasis

↑ (Utt. I-Sell.[8]/Utt. II-Sel./Utt. III-Sel.)

In Uttereme IV there is a tie between the manifestations of the two grammemes, since both must belong to the same uttereme (i.e. if the selection is from a certain utterance of Uttereme I, the manifestation of the non-emphasis grammeme will also be from that same utterance of Uttereme I). Some examples of this utterance type are the following: w^{2}ʔa^{4} n^{4} tsa^{4}ʔ *You'll make a house!* (or more freely: *It's a house you'll have to make!* The particular narrative from which this utterance is taken is a story of the flood in which the man's dog is advising him what to do) (<w^{2}ʔa^{4} *house,* n^{4} *future,* tsa^{4} *make,* ʔ *you*). hę^{4} kwe^{4}nta^{1} kwe^{4}nta^{1} ne^{4}ha^{2}mto^{1} t hu^{1}ʔ ne^{4}

[7] One of these formulas will be explained in detail in the succeeding pages. The plus-minuses are not dependent one upon another. If such had been the case, they would have been grouped together by means of brackets to show the hierarchy.

[8] Read: Uttereme I apart from one or occasionally two grammemes selected for special attention and moved to the emphasis spot. The diagonal lines in the formula indicate alternates. When there are two grammemes of emphasis, the one to receive most emphasis occurs first.

ka^{4}tši^{4}ʔ škwe^{1} ya^{1} na^{2} kho^{2} na^{1}mtkie^{3} *Very carefully all at once the rat jumped right on top of the woman* (<hę^{4} *very*, kwe^{4}nta^{1} *carefully*, kwe^{4}nta^{1} *carefully*, ne^{4}ha^{2}mto^{1} *all at once*, t *past tense*, hu^{1}ʔ *jump*, ne^{4} *third singular personalizer*, ka^{4}tši^{4}ʔ *rat*, škwe^{1} *middle*, ya^{1} *good*, na^{2} *nominalizer*, kho^{2} *on*, na^{1}mtkie^{3} *old woman*).

Uttereme V: query.

Minimum-Maximum: +Question Indicator (question indicator) + Affirmation (Uttereme I/II/III/IV).

The following utterances illustrate Uttereme V: ʔa^{4} ya^{1} tsʔią^{4} th a^{4} ʔ *Was the errand you went on a good one?* (<ʔa^{4} *question indicator*, ya^{1} *good*, tsʔią^{4} *work*, *errand*, t *past tense*, ha^{4} *go*, ʔ *you*). ʔa^{4} kha^{4}we^{4} tsʔa^{1}m hu^{4} *Does he want her?* (<ʔa^{4} *question indicator*, kha^{4}we^{4} *want*, tsʔa^{1}m *his heart*, hu^{4} *her*).

Uttereme VI: sequence utterance.

Minimum-Maximum: +Connector (connector) + Affirmation (Uttereme I/II/III/IV/V).

Uttereme VI does not occur initially in a conversation, since, by definition, it has the structural meaning of "sequence utterance." Two examples of Uttereme VI are the following ndo^{1}ʔ tšiu$^{2-3}$ l^{4}ʔa^{3} *And what will we do?* (<ndo^{1}ʔ *and*, tšiu$^{2-3}$ *what*, l^{4}ʔa^{3} *we will do*). sæ^{2} ma^{2} hnde^{3} ma^{2} nthi^{3} ya^{2} *But I understand a lot* (<sæ^{2} *nevertheless*, ma^{2} *continuative*, hnde^{3} *much*, ma^{2} *continuative*, nthi^{3} *understand*, ya^{2} *first person*).

Uttereme VII: response.

Minimum-Maximum: +Response (Uttereme I/II/III/IV/V/VI/ Noun x/ Verb x/ Attributive x/ Time x/ Location-Direction x/ response).

Uttereme VII consists of only one grammeme with a great variety of manifesting members. The various elements which fill this grammemic spot comprise a high-layered class, consisting of all units which occur as responses. Examples of Uttereme VII are the following: tma^{4} šue^{4} šue^{3}we^{1} *Thursday afternoon* (<tma^{4} *afternoon*, šue^{4} *day*, šue^{3}-we^{1} *Thursday*). ma^{2}hu^{4}ʔti$^{3-1}$ tsʔią^{4} na^{2} hn^{2}-dɔ$^{2-3}$ ya^{2} *The same errand that I came on before* (< ma^{2}hu^{4}ʔti$^{3-1}$ *same*, tsʔią^{4} *errand*, na^{2} *nominalizer*, hn^{2}dɔ$^{2-3}$ *came*, ya^{2} *first person*). ho^{3}he^{2}ʔ *All right.*

For a complete description of Amuzgo the distribution of these utteremes within hyper-utteremes revealing the hyper-utteremic structure would be defined. However, for the purposes of this paper, the scope is limited to the uttereme as the top level of focus. A few of the low-level (non-literary) hyper-utteremes have been identified, but it is evident that there are others which will come out in larger test. In addition, the literary hyper-utteremes such as story-telling forms need further study for differentiated types. However, the reader may be interested in a few formulas of some of the frequent low-level hyper-utteremes which have been identified. Note that hyper-utteremes of two levels are represented, as indicated by the A or B after the word "hyper-uttereme" in each instance.

Hyper-uttereme A I: quoted affirmation or query. Minimum-Maximum: +Quote (Uttereme I) + Quotation (Uttereme I/II/III/IV/V/VI/VII).

Hyper-uttereme A II: split quote. Minimum-Maximum: +Quotation (Uttereme I/II/III/IV/V/VI/VII) + Quote (Uttereme I) + Quotation (Uttereme I/II/III/IV/V/VI/VII).

Hyper-uttereme A III: joined affirmations. Minimum-Maximum: +Affirmation (Uttereme I/II/III) +Affirmation (Uttereme VII).

Hyper-uttereme A IV: information-seeking situation and response. Minimum-Maximum: +Request (Uttereme I/IV) + Response (Uttereme V).

Hyper-uttereme B I: story-telling episode. Minimum-Maximum: +Introduction (Uttereme I/II/III) + Sequence (Uttereme I/II/III/IV/V/VI/VII/HU A I/HU A II/HU A III/HU A IV) + Conclusion (Uttereme I/II).

2.2. The reader may note that the units which constitute the uttereme are grammemes. As mentioned above, these gram-

memes are the lowest spot-class correlative within the hierarchy of immediate constituents. Each grammeme is comprised of (1) a specific grammemic spot which has a distinct structural meaning and occurs in a certain physical order within its respective uttereme and (2) of a certain manifesting unit which fills the grammemic spot just referred to. In the uttereme formulas the relational components are set forth graphically. The spot is written first, with the filler immediately following in parentheses.

The grammemes found within Uttereme I will be briefly described to illustrate the grammeme composition. In the formulas above, note that the minimum form of Uttereme I is constituted of an action spot filled by a verb expression and an actor spot filled by a noun expression, which together comprise the obligatory hypergrammeme. Following this hypergrammeme in the potential expansion of Uttereme I are a series of optional grammemes in the order now described. The goal grammeme is composed of a goal spot which is filled by a noun expression. Following this are the manner grammeme, in which the manner spot is filled by an attributive expression, and a location-direction grammeme with the location-direction spot filled by an expression of the same name. The time grammemic spot and expression comprise the time grammeme. Next is the vocative grammeme which consists of a vocative spot filled by a Noun B expression. The final grammeme in Uttereme I is the attention grammeme which is constituted of an attention spot filled by Verb A.

With this amount of explanation the reader will be able to work through the remaining formulas of section 2.1 with sufficient comprehension to follow the further discussion of this paper. Reference will be made to these formulas from time to time when we wish to have the matrices for discussing the distribution of the fillers, especially of the noun fillers, in Section 3.

With the exception of the attention grammeme, all of the grammemes in Uttereme I are manifested by expressions of various kinds, which may be either a single morpheme or a phrase of more than one morpheme which manifest a number of included grammemes. These units reveal internal hierarchical structuring. In each instance the phrases contain two essential parts, one a nucleus or central element (usually called the "head"), and the other a simple or complex satellite which is the manifestation of all the remaining included grammemes in the relationship of modification to the head. The identification of the filler of the head spot is indicated by the name of the expression in all but two instances. The head spot of the time expression is filled by a Noun C expression or Verb C expression, while the location-direction head spot is filled by a Noun A expression. The other included grammeme in both of these last two phrases indicates distance in space or time.

3. Turning now to a more limited phase of the study we wish to explore in considerable detail one specific section of the grammar, namely the noun phrase, in terms of its structure, class membership, and distribution within the utteremes. By observing the structuring of this one type of phrase, the reader will have an understanding of the general part played by phrases in the hierarchy of the language.

In the course of the description of noun phrases, further hierarchical structuring is observable, pyramiding down to the single morpheme and various special hypermorphemes which form the head or core of the noun phrase. In fact, the name of the phrase is derived from this very nucleus.

Following the description of noun phrases, we shall proceed in the succeeding section much more briefly to indicate the way that this particular treatment gives us a clue to the structuring of the rest of the language.

3.1. Internal structure of the noun phrase. The subassembly designated noun expression (as in the grammeme, Actor (Noun x),

of Uttereme I) is composed of either a single noun, or a noun phrase which manifests a number of included grammemes. The potential expansion of these grammemes may be represented by the following formula:[9] ±[±Quantity 4(Noun Gd) ± Quantity 3(Noun Gc) ± Quantity 2(Noun Gb) ± Quantity 1(Noun Ga)]/Quantity (Noun Ga phrase) ± Plural (plural) + Noun Head (Noun) ± Modifier 1 (Noun J/Attributive D/Verb D) ± Modifier 2 (Possession x/Locating x/Uttereme I).

This formula implies, among other things, that any noun head may optionally be preceded by a plural grammeme, but note the restrictions placed on this and similar occurrences in Section 3.22.1. The symbolization of the division classes which implement these restrictions would have to be added to the noun phrase formula if one wished to indicate the full distributional restrictions. Because of the crisscrossing found in the division subclasses this would involve more complexity than is useful to the reader at this point.

The sub-subassemblies found within the formula immediately above (which are Noun Ga phrase, Possession x, and Locating x, where x = "expression") reveal still further internal hierarchical structuring. They may be expressed in the following supplementary formulas: Noun Ga phrase = +[±Intensity (intensity) ± State (state) ± Limitation (limitation)] + Quantity Head (Noun Ga). Locating expression = +Locating (Noun I/Attributive E) ± Distance (distance). Possession expression = ±Classifier (Noun F) + Possession (Noun L).

Returning now to the noun phrase formula at the beginning of this section, the nucleus or core of this subassembly is the noun head grammeme which occurs as the only obligatory item. Immediately preceding the noun head grammeme is an optional plural grammeme. Preceding the plural grammeme are two alternates. The first consists of a series of four optional quantity grammemes; the second consists of a single quantity grammeme which is manifested by a Noun Ga phrase. Following the noun head grammeme are two optional modification grammemic spots with various fillers.

The following examples illustrate noun phrases. In each case the particular portion of the formula to be illustrated, with the specific class of fillers designated, is mentioned preceding the example. +Quantity 3(Noun Gc) + Quantity 2(Noun Gb) + Quantity 1(Noun Ga) + Noun Head-(Noun); kwi^{3}tšę^{3} kwi^{3} nę$^{2-3}$ šue^{4} *another eight days* (<kwi^{3}tšę^{3} *another*, kwi^{3} *one*, nę$^{2-3}$ *eight*, šue^{4} *day*). +Noun Head (Noun) + Modifier 1 (Attributive) + Modifier 2(Locating phrase); n$^{\prime}$a$^{1-3}$ m ško^{3} maį^{2} $^{\prime}$ *that new word* (<n$^{\prime}$a$^{1-3}$m *word*, ško^{3} *new*, maį^{2} *this*, $^{\prime}$ *at a distance*).

3.2. Turning to the morpheme content of the noun phrase, we are confronted with a number of morpheme classes. However, the most crucial one is that which fills the noun head spot, since it is basic to the entire phrase. In this paper, we began at a high-layered form, the utterance, and pyramided down to the phrase and now have reached the minimum unit, the morpheme. Furthermore, the emic noun class fills not only the noun head spot but several other spots within the noun phrase. Therefore a discussion of the noun class is of interest from several vantage points.

The noun class constitutes one of the three major morpheme-hypermorpheme classes in Amuzgo. The general meaning of this class is 'item.' This is a large category of meaning with a rather broad interpretation, as is seen from the inclusion of such morphemes as he^{3}$^{\prime}$ *today, now*, ka^{4}nia^{3}m *disagreeable smell of fruit*, and ha^{4}mta^{1} *town meeting*, which are included on distributional grounds. The noun class comprises a number of alloclasses, emic subclasses, and division subclasses of highly varied and significant types, and has a great versatility in distribution.

3.21. Distribution classification of the noun

[9] The diagonal lines indicate alternates and the brackets, dependent groupings.

class. The members of the emic noun class are classified on the basis of their distribution in the utteremes of the language. As observed above, the noun class has a very widespread distribution. In fact, it is this versatility of distribution which is one of the most significant features of Amuzgo grammar. Note the various grammemic spots in which the noun class may occur in Uttereme I: there is the more usual distribution as manifesting the actor, goal, and vocative grammemes. In addition, however, this class is distributed in the manner, time, and location-direction spots. Furthermore, although it is not reflected in the formula for Uttereme I, there are various other included spots which may also be filled by nouns, such as modification spots within the noun and verb subassemblies. (See **1, 2.2,** and **3.2** for partial anticipations of the material treated in this section.)

Since not all members of the noun class occur in all these spots, we are faced with a very difficult decision regarding classification. In this particular situation several alternate treatments are possible. The first of these is to make a separate class for any difference in distribution, such that the first class is comprised of all the elements which occur in one spot. A second class, overlapping in membership with the first, is comprised of all the elements filling a second spot. A third, overlapping in membership with the first and second, is comprised of fillers of a third spot, etc. This approach is an essential structural point but leads only to a provisional analysis in terms of such a large number of groupings that it is not useful until it is re-analyzed emically to bring together many of these etic groups into a small number of emic groups.

A second approach, which at first appears to be very much like the first but in its ultimate results differs widely, is to group together those which have anything in common in distribution and to make subclasses on the basis of wider distribution. For example, the noun class might be defined as occurring in the goal spot. Then Subclass A would include those members which occur only in this spot. Subclass B would perhaps include those which occur in the actor spot as well as in the goal spot; Subclass C in the time and goal spots; Subclass D in time, actor, and goal spots; Subclass E in location-direction and goal spots, and so on.

This second type of classification would not include as nouns a certain limited number of morphemes which occur in the time, location-direction, vocative, and other spots but never in the goal spot. These very limited lists of morphemes have in this paper been included in the noun class on the basis of distribution parallel to many other morphemes which fill those spots in addition to manifesting the actor and goal grammemes.

However, it is not in the inclusion or exclusion of these particular morphemes with defective distribution that the main difference in the basic classification according to grammemic theory is found. The primary difference is in the general approach to the problem of classification. In this second method the interest is in differentiated groups with mutually exclusive groupings, whereas grammemic theory seeks for its basic distribution classes positive groups, such that the members act alike in a particular spot.[10] That is, in the grammemic approach the investigator is interested in functional groups regardless of overlapping membership.

In grammemic theory, items are grouped in one emic class on the basis of overlapping distribution, with further subdivisions made in terms of alloclasses and emic subclasses. Within these two categories, morphemes

[10] A secondary type of classification, however, involving the relationships of certain nouns to other morphemes and grammemes, resembles the general procedure described in the second approach described above, in which mutually exclusive groupings are made. The resultant groups are subdivisions of the distribution classes and are therefore subordinate to the basic distribution classes. These subdivisions are labelled "division subclasses" and are described in detail in **3.22.**

which pattern alike are grouped together, so that those which fill the actor spot comprise one group, those which fill the goal spot another, those which fill the location-direction spot another, and so on. In this way, all the morphemes which fill a particular spot are classed together, rather than being separated into many different classes or subclasses.

The problem of determining which are alloclasses and which are emic subclasses in Amuzgo nouns is an extremely delicate one and will be considered in some detail in the following sections (**3.21.1** and **3.21.2**).

3.21.1. There are a number of alloclasses within the emic noun class which are not relevant in the same sense as subclasses. The alloclasses constitute etic distinctions, which, as such, are part of the description of the language as a whole. Several characteristics of alloclasses in Amuzgo are presented in order to demonstrate the basic criteria used in determining the alloclasses. Primarily, each alloclass is a locally conditioned variant, modified by the environment in which it occurs. The conditioning factor may be any one of the following: a grammeme, a particular morpheme manifesting a grammeme, or one or more phonemes.

Developing out of this primary criterion for alloclasses is a second factor characterizing them. When the membership of two etic classes belonging to one emic class is limited by the particular grammemes manifested, the size and type of membership involved in the two etic groups is a relevant factor. If the membership of both groups is large and is only sporadically or non-systematically different, the membership of two such groups constitutes alloclasses. If, on the other hand, the membership of the one group is large and the other small and if the small one is semantically systematic, the small one is considered an emic subclass, provided that it also meets the criteria given in **3.21.2.**

The alloclasses of Amuzgo nouns may be divided into membership, semantic, and phonological variants.

3.21.11. Membership (or lexical) variants consist of membership limitations of the emic class manifesting the various grammemes. Two types of membership variants occur in Amuzgo nouns: those which are conditioned by morphemes and those conditioned by grammemes.

3.21.11.1. Within the noun class there are a number of morphemically (lexically) conditioned variants as a result of semantic limitations imposed by the particular morphemes filling the action spot. They appear to be sporadic and non-systematic and are not relevant within the scope of this paper. These are simply mentioned briefly here to complete the picture. For example, the actor grammeme is never manifested by such morphemes as ne^{1}ki^{4}a^{3}m$^{?}$ *sun*, tski^{3}$^{?}$ *hammock*, or su^{4}læ^{1} *chair*, when the action grammeme is manifested by such morphemes as t$^{?}$io^{2} *cry*, kwa^{2}$^{?}$ *eat*, or kǫ^{1}$^{?}$ *borrow*.

3.21.11.2. The grammemically conditioned lexical variants constitute two alloclasses which involve a very large membership. Noun Alloclass a is conditioned by the fact that it manifests the actor grammeme in Uttereme I. The following members are typical examples of this alloclass: ts$^{?}$ą$^{3-2}$ *person*, lha^{4}$^{?}$ *flower*, tsa^{2}m *paper*, ka^{4}tsku^{2} *pig*, ka^{4}šhu^{2} *star*.

Noun Alloclass b is conditioned by its occurrence manifesting the goal and item grammemes in Utteremes I and II. The following members serve as illustrations: lia^{4} *cloth*, ts$^{?}$ią^{4} *work*, shɔ$^{4-3}$ *mountain*, ts$^{?}$ą$^{3-2}$ *person*.

3.21.12. Locally conditioned variants of an emic class also occur in which the local environment affects the meaning of some but not all of the morphemes occurring in a certain spot. The noun class contains two alloclasses of this type. These members constitute grammemically conditioned semantic variants of the noun class. Typical members of Alloclass c, conditioned by the modification spot immediately following the noun head spot, are the following: ka^{4}tšu^{2}i^{3}$^{?}$ *parrot* > *green*; ka^{2}hu^{3}e$^{3-2}$ *coffee* > *brown*; tši^{1} *sugar* > *sweet*; n^{2}ta$^{3-1}$m *soot* > *black*;

tshɔ^{2}ʔ *sky* > *blue*. Note: kwa^{1} lia^{4} ka^{4}tšu^{2}i^{3}ʔ la^{1}ʔ *Why, that's a green cloth!* (<kwa^{1} *why*, lia^{4} *cloth*, ka^{4}tšu^{2}i^{3}ʔ *parrot* > *green*, la^{1}ʔ *that*).

Similarly, some members of the noun class which occur in the location-direction spot are conditioned in meaning by that particular spot. This group, Alloclass d, may be illustrated by the following: tsʔa^{2}m *viscera, heart* > *in, inside of*; sʔe$^{4-3}$ *foot* > *at the foot of*; škyę$^{3-2}$ *head* > *on top of*; se^{3}ʔ *back* > *behind, back of*.

All members of Alloclass d are obligatorily possessed nouns. Therefore, since the free translation of these possessed nouns in the location-direction spot takes the form of a prepositional phrase, the possessor is translated as the object of the preposition. For example, se^{3}ʔ tsʔa^{4}m *the tree's back* is translated freely as *behind the tree* in the location-direction spot.

3.21.13. Within the noun class there is one further type of variants. These differ from the other two types in that the members of these variant alloclasses are allomorphs rather than morphemes as such. Thus, submorphemic phonological variants of morphemes and hence of their manifesting classes are involved.

3.21.13.1. The phonological variants in Noun Alloclass e are conditioned by the response grammeme which they manifest. The membership of this alloclass consists of the following allomorphs: ha^{2} *first person*, a variant of ya^{2}; ki^{3}o^{2}ʔ *animal*, a variant of yo^{2}ʔ; ʔu^{2} *second person*, a variant of ʔ; ha^{4}m *third person*, a variant of nasalization; loa^{2} *that*, a variant of la^{2}.

In a similar fashion, Noun Alloclass f is conditioned by the noun head grammeme when manifested by morphemically complex members. The members of this alloclass occur as the first member in such a hypermorphemic sequence. The two members of Alloclass f are: na^{3} *thing*, a variant of ʔnna^{4}; and tsą^{3} *person*, a variant of tsʔą$^{3-2}$. Note na^{3}ntkie^{1} *food*, na^{3}tši^{1} *panela*, tsą^{3}sku^{1} *woman*, tsą^{3}sʔa^{1} *man*. See **3.22.14.2** for greater details regarding this type of construction.

Alloclass g is conditioned by the distance grammeme which is included in the time and location-direction phrases. This alloclass contains only one member, which manifests this distance grammeme. That member is tšę^{3} *outside, far away in either time or space*, which is a variant of tšʔę^{3}. Note: Lu^{4}nhą^{1} tšę^{3} thą^{1} *He went clear over to Lunhan (a neighboring town)* (< Lu^{4} nhą^{1} Lunhan, tšę^{3} *far away, at a distance*, thą^{1} *he went*).

3.21.13.2. The phonemically conditioned phonological variants of the noun class consist of Alloclass h with members a^{2} *first person*, a variant of ya^{2}; and m *third person*, a variant of nasalization. The first allomorph is a variant which occurs following morphemes ending with a glottal. The second member follows morphemes ending in o or u.

3.21.2. The emic class of nouns has within it a number of subclasses which are structurally relevant (as distinguished from alloclasses which are not structurally relevant). The reader may note that these subclasses have been graphically represented in the formulas for utteremes and noun phrases (see **2.1** and **3.1**).

There are several criteria involved in determining subclasses in Amuzgo (though a different set of criteria might be necessary in other languages). The first of these pertains to the membership involved. In a subclass, the number of members is quite small, limited by the special spot in which it occurs. For example, in time spot only morphemes with time meanings could occur.

A second criterion is that the grammemic spot in which the morphemes occur may affect the lexical meaning of all the members of the group in the direction of the grammemic meaning. For example, the noun ʔn^{4}da^{3} *baby* when occurring in the description spot is translated as *young*. When the meaning of all the members filling a certain spot is affected, this constitutes a structural meaning for the entire group and is therefore structurally relevant.

Third, within an emic subclass of Amuzgo one is likely to find a few special members which do not occur in the major grammemic spots which can elsewhere be filled by other members of that emic subclass, so that this special membership of the emic subclass helps to mark it as emically distinct from the total class of which it is a subclass. For example, tsmai^{3}ʔ *animate indicator* occurs in the classifier spot but does not occur in the goal spot, whereas ʔnna^{4} *thing, inanimate classifier* occurs in both of these spots.

Noun Subclass A fills the head spot in the location-direction grammeme. Representative members of this subclass are the following: tsha^{4}m *town*, su^{4}læ^{1} *chair*, na^{3}mtua^{1} *ground*, sʔe$^{4-3}$ *foot*, ta^{1} *hill*. Note: ma^{2}hɔ^{1} hndæ$^{1-2}$ *I'm going to the monte* (< ma^{2} *continuative*, hɔ^{1} *I go*, hndæ$^{1-2}$ *monte*).

Noun Subclass B fills the vocative spot. The following are representative members of this subclass: ʔu^{2} *you*, le^{4} *girl*, ka^{4}tsue^{3}ʔ *dog*, n^{3}na$^{4-1}$ *mother*, hu^{3}ą$^{3-1}$ *John*. Note: lho^{1}ʔ *ma*^{2} tsu^{2}ʔ le^{1} *What do you say, girl?* (< lho^{1}ʔ *what*, ma^{2} *continuative*, tsu^{2}ʔ *you say*, le^{1} *girl*).

The time grammeme is manifested by Noun Subclass C. This subclass contains members such as the following: tši^{3}ʔ *month*, tšu^{3} *year*, he^{3}ʔ *today, now*, le^{2}nko^{2}ʔ *Sunday*, še^{2}hn^{4}dæ$^{3-1}$ *completed time or weight > afterwards*. Note: he^{3}ʔ ma^{2} hɔ^{1} *I'm going right now* (<he^{3}ʔ *now*, ma^{2} *continuative*, hɔ^{1} *I go*).

Noun Subclass D fills the description grammeme in Uttereme II. The grammemic meaning of this particular spot alters the usual morphemic meaning which all of the manifesting morphemes have elsewhere. This, therefore, constitutes a structural meaning of the entire subclass in contrast to alloclass semantic variants. The following members serve as illustrations: ko^{2}lo$^{3-1}$ *color > colored*; tši^{3}ʔ *moon > round*; tšhę^{1}ʔ *salt > salted*; ʔn^{4}da^{3} *baby > young*; sʔa^{1} *man > manly, brave*; su^{3} *a plain > level*; tsʔią^{4} *work > busy*; ka^{3}tkya^{3} *nest > tangled* (e.g. hair, thread); ka^{4}tsia^{3}mʔ *honeybee > mischievous*; ka^{4}šʔe^{4} *miller moth with crooked wings > crooked*. Note: hę^{4} ʔn^{4}da^{3} ne^{3} Ma^{4}ro^{1} kya^{2} thą^{1} Sn^{4}da^{3} *Maro was very young when he went to Mexico City* (< hę^{4} *very*, ʔn^{4}da^{3} *baby > young*, ne^{3} *personalizer*, Ma^{4}ro^{1} *Maro*, kya^{2} *when*, thą^{1} *he went*, Sn^{4}da^{3} *Mexico City*).

Noun Subclass E occurs in the manner spot and consists of a very limited list. All of the members of this subclass, like Subclass D, are semantically conditioned. Examples are: kwe^{4}nta^{1} *account > carefully*; tsæ^{2} *mold > dusty gray*. Note: hę^{4} kwe^{4}nta^{1} thu^{1}ʔ ne^{4} ka^{4}tši^{4}ʔ *The rat jumped very carefully* (<hę^{4} *very*, kwe^{4}nta^{1} *carefully*, thu^{1}ʔ *jumped*, ne^{4} *personalizer*, ka^{4}tši^{4}ʔ *rat*).

The subclasses described above are quite clearly subclasses with main function spots involved in each instance. In addition, certain groups of nouns function as subclasses according to the criteria mentioned above, although included rather than basic spots are involved. These are the following.

Noun Subclass F fills the classifier spot within the possession phrase. Only two morphemes constitute this subclass; tsmai^{3}ʔ *animate classifier* and ʔnna^{4} *thing, inanimate classifier*. Note: na$^{1-4}$ mkya^{3}ʔ ka^{4}so^{1} tsmæ$^{2-3}$-ʔa^{2} *My horse is different.* (<na$^{1-4}$mkya^{3}ʔ *different*, ka^{4}so^{1} *horse*, tsmæ$^{2-3}$ʔa^{2} *my animate possession*).

Noun Subclass G fills the quantity spots within the noun phrase. These are further subdivided in accordance with the particular quantity grammeme they manifest. Subclass Ga fills quantity 1 head spot. This group includes all numerals and a few other morphemes. The following are examples: kwi$^{4-3}$ *one*, we^{2} *two*, ki^{2} *ten*, hn^{3}de^{3} *much*, ti^{2}kwi$^{2-3}$ *every*. Subclass Gb fills quantity 2 spot. This includes such as tša^{2}ʔwa^{3} *all* (*of one item*), tša^{2}ʔtso^{3} *all*(*of many items*), and tha^{2} *no*.

Subclass Gc manifests the third quantity grammeme. The only members in this subgrouping are: kwi^{3}tšę^{3} *another*, n^{2}tʔa^{2}mtsę^{3} *other*, maį^{1}tšho^{4} *not even a little*. Subclass Gd, which fills the fourth quantity spot, consists of kwa^{2}n^{2}ti^{3} *some* and kwa^{2}n^{3}ti^{3}nde^{2} *some*. Note: kwi^{3}tšę^{3} kwi^{3} nę$^{2-3}$ šue^{4} *another*

eight days (<kwi^{3}tšę^{3} *another*, kwi^{3}*one*, nę$^{2-3}$ *eight*, šue^{4} *day*).

Noun Subclass H fills the modification spots following the verbs. There are several subgroupings of this subclass on the basis of the particular postmodifier grammeme which they manifest. Subclass Ha fills the manner spot following verb head spots. The two members of this subclass are: kue^{4} *down* (with meaning in goal spot of *steep slope*), and yu$^{2-3}$ *desperative* (with possible meaning in goal spot of *place*). Subclass Hb fills the personalizer spot following both verbs and attributives. The only member of this group is nde^{3} *personalizer, reflexive*. Subclass Hc fills the degree spot following verbs. The two members of this subgrouping are n$^{\text{ʔ}}$ę^{2} *with, thoroughly*, and he^{3}$^{\text{ʔ}}$ *today, now*. Subclass Hd fills the degree spot following both verbs and attributives, with ti^{2} *more* its only member. Note: tšiu$^{2-3}$ n^{4} ts$^{\text{ʔ}}$a^{3} yɔ^{3} ya^{2} *Whatever shall I do?* (< tšiu$^{2-3}$ *what*, n^{4} *future*, ts$^{\text{ʔ}}$a^{3} *do*, yɔ^{3} *desperative, first person*, ya^{2} *first person*). t ha^{1} kue$^{3-2}$ n$^{\text{ʔ}}$ę^{2} ne^{1}ki^{4}a^{3}m$^{\text{ʔ}}$ *The sun has gone down completely* (< t *past tense*, ha^{1} *go*, kue$^{3-2}$ *down*, n$^{\text{ʔ}}$ę^{2} *thoroughly*, ne^{1}ki^{4}a^{3}m$^{\text{ʔ}}$ *sun*).

Noun Subclass I fills the locating grammeme, an included grammeme within the noun phrase. Examples of this subclass are loa^{2} *that*, maį^{2} *this*, and nne^{3} *that*. Note: n$^{\text{ʔ}}$a$^{1-3}$m ško^{3} maį^{2} *this new word* (< n$^{\text{ʔ}}$a$^{1-3}$m *word*, ško^{3} *new*, maį^{2} *this*).

Noun Subclass J fills the modification spot immediately following the noun head spot in the noun phrase. Typical members of Subclass J are the following: nda^{4}lue^{4} *ocean*, šho^{1} *metal*, tai^{1}na^{3}mtsa^{2} *pineapple*, tši^{1} *sugar* > *sweet*, nia^{3}m$^{\text{ʔ}}$ *blood*. Note: tsua^{2} tai^{1}na^{3}mtsa^{2} *pineapple clump* (< tsua^{2} *clump*, tai^{1}na^{3}mtsa^{2} *pineapple*).

Noun Subclass K fills the distance spot in both the time and location-direction phrases. There is only one member of this subclass, tšę^{3} *outside, far away*. Note: hn^{2}dæ$^{2-3}$ tšę^{3} t hą^{4} *He went clear out to the monte* (< hn^{2}dæ$^{2-3}$ *monte*, tšę^{3} *far away*, t *past tense*, ha^{4} *go*, nasalization *third person*).

The final noun subclass, Subclass L, fills the possession spot within the possession phrase. Typical members are: ts$^{\text{ʔ}}$ą$^{3-2}$ *person*, mai^{4}sa^{1} *table*, ka^{4}so^{1} *horse*, ya^{2} *first person*. Note: lia^{4} ya^{2} *my cloth* (< lia^{4} *cloth*, ya^{2} *my*).

3.22. The classification up to this point has been in terms of the total class filling a spot. In addition to this, another whole area of classification remains to be done. This involves the subdivision of a distribution class into two or more parts in accordance with relationships of the nouns that fill a certain spot to adjacent grammemes within the utterance or to their manifesting members. This is a different kind of classification which divides into several parts a class which in spot distribution is unitary. The resultant subdivisions are labelled 'division subclasses.' These division subclasses are subordinate to the distribution classes which are described in **3.21.**

3.22.1. The first large group of division subclasses consists of subdivisions based on membership in accordance with (a) potential modification, (b) potential pluralization, (c) manner of expressing possession, and (d) internal structure. The noun class is subdivided in different ways according to these four features. The resultant classifications cross-cut each other, so that each noun has a four-fold classification in terms of division subclasses.[11]

3.22.11. Noun 1 consists of all nouns which may be modified. Typical examples are:

[11] It is possible to make a combined classification on the basis of these four features which more nearly follows the procedure described as the second approach to classification in **3.21**. If such a combined classification is made, the two big divisions would be Modified and Non-Modified. Then Modified would be divided into subdivisions, Pluralizable and Non-Pluralizable. Each of these subdivisions would be divided into five subsubdivisions based on the way possession is expressed. Finally, each of these sub-subdivisions would be divided into Morphemically Simple and Morphemically Complex. The advantage of the classification adopted in this paper is the smaller number of subdivisions.

tski^{3}ʔ *hammock*, tsʔɔ^{3} *arm, branch*, ka^{4}lu^{2} *whistle*, ntyu$^{3-2}$ *horn*, sa^{3}m *flag*.

Noun 2 consists of the nouns which are never modified, such as ha^{2} *first person*, ʔu^{2} *second person*, ha^{4}m *third person, masculine or feminine*, hu^{4} *third person, masculine, feminine, or neuter*.

3.22.12. Noun 3 consists of all nouns which are pluralizable. This division subclass may be further subdivided on the basis of the type of conditioning of the plural morpheme which these nouns cause. Noun 3a causes phonemic conditioning of the plural morpheme. Examples of Noun 3a are: ska^{3} *candle*, tski^{3}ʔ *hammock*, ško^{4} *dove*, ka^{4}tsku^{2} *pig*, tšmaį^{3} *cat*. Examples of Noun 3b which causes morphemic conditioning of the plural morpheme are ka^{4}so^{1} *horse*, mai^{4}sa^{1} *table*, so^{3} *hair*, tai^{1}sa^{3} *banana*.

Noun 4 consists of those nouns which are never pluralized, such as: ki^{3}o^{2}ʔ *animal*, lkwa$^{2-3}$ *pus*, lia^{4} *cloth*, lu^{4}i^{3} *tendon, blood vessel*, se^{3}ʔ *meat*.

3.22.13. Five further division subclasses in Amuzgo nouns are determined by the manner of expressing possession. Some nouns in Amuzgo are obligatorily possessed. These nouns constitute Noun 5 with such typical members as: the$^{2-3}$ *younger person*, tsʔɔ^{3} *arm, branch*, ndu$^{2-3}$ʔ *nose*, ʔn^{4}do^{3} *mouth*, sku^{1}ʔ *wife*.

Other nouns are never possessed. Noun 6 consists of such members as hnde^{1} *air*, tsho^{2}ʔlu^{4}e^{3} *sky*, ne^{1}ki^{4}a^{3}mʔ *sun*, ƀʔio^{1} *hell*, su^{4}lho^{4} *whirlwind*.

Still other nouns are optionally possessed. However, the optionally possessed nouns differ in the way possession is indicated. There are two classifiers which fill the classifier spot between the noun head grammeme and the possession grammeme. There is not complete freedom in regard to the particular noun head or classifier or possessor which can occur in relation one to another but there are rather some lexical restrictions. Specifically, certain noun heads occur before one classifier, tsmai^{3}ʔ *animate classifier*; others occur before another classifier, ʔnna^{4} *thing inanimate classifier*; whereas still others occur immediately before the possessor without any classifier.

The following represent the members of Noun 7, which occur before tsmai^{3}ʔ *animate classifier*: tšmaį^{3} *cat*, ka^{4}tsue^{3}ʔ *dog*, ka^{4}tsku^{2} *pig*, ka^{4}tsha^{2}m *turkey*, ka^{4}so^{1} *horse*.

Noun 8 consists of those members of the noun class which occur before ʔnna^{4} *thing, inanimate classifier*, manifesting the classifier grammeme within the possession phrase. Some members of Noun 8 are: ska^{3} *candle*, tski^{3}ʔ *hammock*, lia^{4}so^{4} *blanket*, ka^{4}tsku *pork*, sulæ^{1} *chair*.

Notice that there is a slight overlap between these two division subclasses, as represented by the inclusion of ka^{4}tsku^{2} *pig* in both groups. The reason for this is the fact that ka^{4}tsku^{2} *pig* may occur before either classifier, depending on the state or condition of the pig. If it is alive, ka^{4}tsku^{2} *pig* is used with tsmai^{3}ʔ *animate classifier*, whereas if one is referring to pork which one has bought in the market, ka^{4}tsku^{2} occurs before ʔnna^{4} *inanimate classifier*, when used in a possession phrase.

Noun 9 consists of those nouns which, though not obligatorily possessed, occur without a classifier in the possession phrase when possessed. This is a very limited list of morphemes. For example: lia^{4} *cloth, dress*, hndu^{2} *bed*, ra^{4}ntšo^{1} *ranch*. There is also a degree of overlap between this division subclass and others. For example, lia^{4} *cloth, dress* occurs in both Noun 8 and Noun 9.

3.22.14. The noun class may be subdivided into two large subdivisions on the basis of internal structure. These two subdivisions are those members which are morphemically simple and these which are morphemically complex. These two large groups will be described in some detail.

3.22.14.1. Representative morphemically simple nouns in Amuzgo, constituting Noun 10, are the following: ska^{3} *candle*, šu^{3}a^{3} *clay pot*, tšmaį^{3} *cat*, ško^{4} *dove*, wʔa^{4} *house*.

3.22.14.2. The morphemically complex

members of the noun class include a large number of Amuzgo nouns, comprising Noun 11. In many instances such sequences have a hypermorphemic meaning beyond that predictable by their parts. These hypermorphemes which fill the noun head spot are written without a space between the morphemes involved.

A very important pattern of structure in Amuzgo is a hypermorphemic sequence in which the first member is a rather general classifier, while the second morpheme specifies the particular item referred to. Examples of such sequences will be illustrated first, followed by a few other hypermorphemic units taken at random from the nouns. All of the examples given, unless otherwise specified, consist of a sequence of two morphemically simple nouns.

With the general classifier ka^4 *animate* are found such morphemically complex members of the noun class as the following: ka^{4}tsue^{3}ʔ *dog*, ka^{4}tsku^2 *pig*, ka^{4}tsœ$^{4-1}$ *butterfly*, ka^{4}tsia^{3}mʔ *honeybee*, ka^{4}hnde^2 *fox*, ka^{4}šhu^2 *star*.

With na^3 *thing, nominalizer* there are such morphemically complex numbers as: na^{3}tši^1 *brown sugar*, na^{3}ya^1 *favor* (sequence of noun plus attributive ya^1 *good*), na^{3}hmaį^{3}ʔ *heat* (sequence of noun plus attributive hmaį^{2}ʔ *hot*), na^{3}ntkie^1 *food* (sequence of noun plus verb ntkie^1 *he will eat*).[12]

A third general classifier is na^{1}m *feminine*. Some nouns occurring with this classifier are: na^{1}mhn^{2}da^2 *daughter*, na^{1}mthɔ$^{3-1}$ *my younger sister*,[13] na^{1}mʔą$^{2-3}$ʔ *that woman* (sequence of noun plus attributive mʔą$^{3-2}$ʔ *is*).[14]

With the fourth classifier, ne^2 *masculine*, are such nouns as: ne^{2}šiɔ$^{2-3}$ *my older brother*, ne^{2}hn^{2}da^2 *son*, ne^{2}thɔ$^{3-1}$ *my younger brother*, ne^{2}šę^{4}ʔ *his brother-in-law*.

A fifth classifier, which has a high frequency of occurrence, is tai^1 *fruit*. Most fruits, as well as a few other items, occur with this classifier. Some examples are: tai^{1}sa^3 *banana*, tai^{1}šʔa$^{3-1}$ *coconut*, tai^{1}nda^1 *tomato*, tai^{1}ti^3 *peanut*, tai^{1}lʔo^1 *bullet*, tai^{1}tšu^{2}ʔ *red zapote* (*a fruit*).

Two morphemically complex nouns which occur with ti^{2}ʔ *masculine* are: ti^{2}ʔšiɔ$^{2-3}$ *my older brother*, and ti^{2}ʔtkie$^{3-2}$ *old man* (sequence of noun plus attributive tkie$^{3-2}$ *old*). ti^{2}ʔ *masculine* is a term used only by men.

A seventh classifier is tsą^3 *person*. Examples with this general classifier are: tsą^{3}sʔa^1 *man*,[15] tsą^{3}sku^1 *woman*, tsą^{3}tsha^{1}m *sandman* (sequence of noun plus verb tsha^{1}m *he sleeps*).

The eighth classifier is tso^3 *familiar person, relative*. Some morphemically complex nouns which occur with tso^3 are: tso^{3}we^{3}lo^1 *very old man*, tso^{3}šę^{1}ʔ *his father-in-law*, tso^{3}te^2 *father*, tso^{3}hn^{2}da^2 *child*, tso^{3}tʔɔ^1 *god*.

[12] The nominalizer na^2 has a high statistical frequency in the language. Not only is it a classifier with a simple morpheme following it, but the second unit may be an entire clause which alone would be an utterance of type I. This new unit then functions as the other members of the noun class. This feature and its implications for the language as a whole will be elaborated on in a later section (**5.3**).

[13] The reason for the inclusion of the person possessor in this and a few following examples will be explained in **3.22.21**.

[14] In this hypermorpheme, na^{1}m *feminine* + mʔą$^{2-3}$ʔ *is* > na^{1}mʔą$^{2-3}$ʔ *that woman*. This follows a morphophonemic rule in Amuzgo in which sequences of like phonemes between morphemes reduce to one.

[15] The only time sʔa^1 *man* or sku^1 *woman* are used without some classifier (such as tsą^3 *person* or yu^2 *human*), is when the relationship of husband or wife is referred to. Note the contrast of sʔa^1 *husband* and yu^{2}sku^1 *woman* in the following utterance: ʔa^4 mʔą^2 sa$^{1?}$ yu^{2}sku^1 wa$^{4?}$ lho$^{2-3?}$ *Does the woman in that house have a husband?* (< ʔa^4 *question indicator*, mʔą^2 *is*, sa$^{1?}$ *husband*, yu^{2}sku^1 *woman*, wa$^{4?}$ *house*, lho$^{2-3}$ *this*, ? *distance*). The absence of a glottal from the morphemes sʔa^1 *man, husband* and wʔa^4 *house* is caused by the following morphophonemic principle: morphemes with medial glottal stops drop the glottal when followed immediately by another glottal in the utterance. This utterance, illustrating Uttereme II, has a phrase filling the item spot. In this phrase sa$^{1?}$ *husband* fills the head spot and yu^{2}sku^1 *woman* a post-modifier spot.

With tyo^{2} *masculine* are found such noun members as: tyo^{2}tšho$^{4-3}$ *boy* (sequence of noun plus attributive tšho$^{4-3}$ *small, little*), tyo^{2}tso^{1} *squirrel (male)*, tyo^{2}tši^{4}ʔ *rat (male)*, tyo^{2}tsue^{2} *thunder man*, tyo^{2}ma^{2}tsʔią^{4} *president* (sequence of noun plus attributive ma^{2} *continuative, is* plus tsʔią^{4} *work*).

The tenth classifier, wʔa^{4} *house*, occurs in such combinations as: wʔa^{4}tsʔią^{4} *town hall* (lit. *house work*),[16] wʔa^{4}tsa^{1}m *car* (lit. *house fire*), wʔa^{4}nda^{4} *boat* (lit. *house water*), wʔa^{4}-nkho^{1} *jail* (lit. *house metals*), wʔa^{4}hnde^{1} *airplane* (lit. *house air*).

The eleventh classifier is yu^{2} *human*. This classifier in hypermorphemic occurrence may be illustrated by the following nouns: yu^{2}sʔa^{1} *man*, yu^{2}sku^{1} *woman*, and yu^{2}ʔn^{4}da *baby*.

Other hypermorphemic members of the noun class consisting of a sequence of noun plus a noun are the following: tša^{1}mtsio^{3} *flashlight* (lit. *fire glass*), sku^{1}lha^{4}ʔ *prostitute* (lit. *woman flower*), lha^{4}ʔsku^{2} *red or white flower with many stamens resembling a skirt* (lit. *flower woman*), tyo^{4}ʔse^{3}ʔ *tamale* (lit. *bread meat*), šho^{1}tsæ^{1} *pen* (lit. *metal feather*).

Another group of morphemically complex members of the noun class consist of noun plus attributive. Examples of these are: nda^{4}taį^{2} *agua fresca or drops of medicine* (lit. *liquid cold*), nda^{4}tæ^{1} *vinegar* (lit. *liquid bitter*), tshɔ^{3}nhę^{4} *centavo, cent* (lit. *rock thin*), tsą^{3}hndi^{2} *devil* (lit. *person bad*). Another group consists of noun plus verb. Two examples of this type are: nda^{4}tio^{1} *water (as in a well)* (lit. *liquid fallen*) and nda^{4}tsu^{4} *milk* (lit. *liquid lost*).

Still another type of hypermorphemic manifestation of the morpheme-hypermorpheme class which fills the noun head spot consists of verb plus attributive, such as kya^{2}hmaį^{2}ʔ *noon* (lit. *comes hot*). This is the only member of the group consisting of verb plus attributive, yet its distribution paralleling simple nouns may be seen in the following utterances. ma^{2} n^{4} ku^{4}e^{3}ʔ kya^{2}-hmaį^{2}ʔ *Noon is coming* (< ma^{2} *continuative*, n^{4} *future tense*, ku^{4}e^{3} *arrive, come*, kya^{2}hmaį^{2}ʔ *noon*). šho^{1} kya^{2}hmaį^{2}ʔ *the noon bells* (<šho^{1} *metal*, kya^{2}hmaį^{2}ʔ *noon*). In the first illustration, kya^{2}hmaį^{2}ʔ *noon* is manifesting the actor grammeme; in the second, this hypermorpheme is manifesting a noun modifier grammeme.

Some hypermorphemic sequences consist of more than two morphemes. They may be noun plus noun plus noun, as in the following: šho^{1}tsua^{1}ʔnna^{3} *spoon* (< šho^{1} *metal*, tsua^{1}ʔ *gourd*, nna^{3} *soup*). šho^{1}tsʔa^{4}mtša^{3}mʔ *egg beater* (< šho^{1} *metal*, tsʔa^{4}m *wood*, tša^{3}mʔ *foam*). The sequence may involve a noun plus an auxiliary plus a verb, as in the following: nda^{4}kwi^{2}ko^{2} *gas, petroleo* (< nda^{4} *liquid*, kwi^{2} *distributive*, ko^{2} *burn*). Or the hypermorpheme may consist of a sequence in which at least one member is a hypermorpheme itself, as is the case in the following: ka^{4}so^{1}nde$^{2-3}$ *cow* (< ka^{4}so *horse*, nde$^{2-3}$ *horn*), ka^{4}su^{2}tio^{1} *ladybug* (< ka^{4}su^{2} *mule*, tio^{1} *saddle*), tsą^{3}tse^{3}lhai^{3} *secretary, scribe* (< tsą^{3} *person*, tse^{3}lhai^{3} *write*).[17]

From a diachronic viewpoint a rather unique development took place in loan words. The items comprising this group were borrowed as single morphemes from Spanish. By analogy with Amuzgo, however, they were treated parasitically as a sequence of two morphemes, especially in the matter of pluralization.[18] They are therefore considered synchronically as two active morphemes, and are consequently morphemically complex members of the noun class. Examples are: ka^{4}to^{2} *parrot* (from cotorra *parrot*, Spanish), mai^{4}sa^{1} *table* (from mesa *table*, Spanish), ka^{3}se^{2}to^{1} *pitcher* (from cazuelo *small pitcher*, Spanish).

[16] In these illustrations containing only two or occasionally three morphemes, the explanation omits the repetition of the Amuzgo and indicates that the meaning of the individual morphemes composing the hypermorphemic sequence is given separately and in the proper order by the presence of lit. (i.e. literally) as the first item inside the parentheses.

[17] For the structure of tse^{3}lhai^{3} *write*, see **4.12**.

[18] Pluralization will be discussed in detail in **3.22.22**.

In pluralization, for example, the ka^4 in ka^{4}to^2 *parrot* was treated the same as ka^4 *animate*, the name of this animal conforming to the usual pattern of animal names in the language. Therefore the plural occurs preceding the second part, since ka^4 *animate* never pluralizes. The resultant plural is ka^{4}nto^2 *parrots*. In like fashion are found mai^{4}tsa^1 *tables*, compared with mai^{4}sa^1 *table*, and ka^{3}ntse^{3}to^1 *pitchers* beside the singular ka^{3}se^{3}to^1 *pitcher*.

The question might be raised as to why these hypermorphemes are treated as morphemically complex nouns, while other sequences containing several nouns are interpreted as noun phrases. Several factors enter into this decision.

The first, and by far the most important, is that every optional grammeme symbolized in the basic noun phrase formula (**3.1**) can remain, even when these sequences of morphemes manifest the noun head grammeme. The members of each hypermorpheme complex are reciprocally obligatory items filling one particular spot as a unit, and are therefore unitary expansions comparable in function to the single morphemes which fill the same spot. A few examples will demonstrate this vital structural unity. As in the illustrations given above for noun phrases, the particular portion of the formula illustrated is mentioned first, followed by the example. + Noun Head (Noun) + Modifier 1 (Attributive) + Modifier 2 (Possession phrase); ka^{4}so^1 tšho^4 tsm^{2}ai^{3}ʔ *your little horse* (< ka^{4}so^1 *horse*, tšho^4 *small*, tsm^{2}ai^{3}ʔ *your animate possessed item*). + Quantity 1 (Noun Da) + Noun Head (Noun) + Modifier 1 (Attributive D); kwi^3 wʔa^{4}hnde^1 tšho^4 *one little airplane* (< kwi^3 *one*, wʔa^{4}hnde^1 *airplane*, tšho^4 *little, small*). + Noun Head (Noun) + Modifier 1 (Attributive D) + Modifier 2 (Locating phrase); yu^{2}sku^1 tšho^4 mʔą$^{2\text{-}3}$ʔ *that little girl* (< yu^{2}sku^1 *woman*, tšho^4 *little*, mʔą$^{2\text{-}3}$*is*, ʔ *at a distance*).

A second factor in the interpretation of the above described morphemically complex nouns as structurally different from sequences within the noun phrase has been mentioned above. That is the fact that many of these hypermorphemes have a hypermorphemic meaning beyond that predictable by its parts. A typical example of this is ka^{4}su^{2}tio^1 *ladybug* (lit. *mule saddle*).

Another characteristic of at least two large groups of these hypermorphemes contributes toward their interpretation as complex fillers of a single grammemic spot rather than as the freer units comprising the noun phrase. These two groups involve the classifiers ka^4 *animate* and tai^1 *fruit* as the first member of the hypermorpheme. In these two groups there are a number of hypermorphemes in which the second element never occurs apart from the classifier. These are treated as a sequence of two morphemes, since there are other parallel hypermorphemes in which the second morpheme is clearly identifiable.[19] Several examples in which the second element occurs alone are the following: ka^{4}tsa$^{1\text{-}4}$m *fly* (< ka^4 *animate*, tsa$^{1\text{-}4}$m *fire*), ka^{4}tsua^4 *wasp, witch* (< ka^4 *animate*, tsua^4 *cactus*), ka^{4}so^1 *horse* (< ka^4 *animate*, so^1 *hair*), ka^{4}nta^{3}m *Negro* (< ka^4 *animate*, nta^{3}m *soot, black*), tai^{1}ska^{1}ʔ *long green pod, containing large seeds which are eaten, shaped like a comb* (< tai^1 *fruit*, ska^{1}ʔ *comb*). Furthermore, some of these second morphemes may occur in several combinations. For example, note the following pairs: ka^{4}tsma^3 *lamb* (< ka^4 *animate*, tsma^3 *cotton*) and tai^{1}tsma^2 *cotton* (< tai^1 *fruit*, tsma^2 *cotton*); ka^{4}ši^{4}ʔ *rat* (< ka^4 *animate*, ši^{4}ʔ —) and tyo^{2}ši^{4}ʔ *rat, male* (< tyo^2 masculine, ši^{4}ʔ —). However, the majority of the second elements never occur apart from their classifier.

Therefore, this internal cohesion mani-

[19] The only difficulty encountered in this analysis is the necessity of postulating meanings for a rather large number of morphemes which never occur without the first morpheme, such as ka^4 *animate* or tai^1 *fruit*. A way of bypassing the problem might be to consider those not easily isolatable as essentially complex nouns without attempting a breakdown into the component parts.

fested by a large number of these hypermorphemes is another factor in their treatment as morphemically complex members of the noun class in contrast with other morpheme sequences which fill various grammemic spots within the noun phrase and show greater freedom in the language. A noun phrase is a hypermorpheme, but it is on a higher structural level than the hypermorpheme comprised of a morphemically complex but unitary member filling the noun head spot.

3.22.2. Another type of division subclass structure consists of subdivisions of the noun class which fuse with certain manifestations of adjacent grammemes. Two phonological division subclasses are found in the noun class.

3.22.21. The members of the first phonological division subclass are fusions of nouns which manifest two grammemes indicating possession. One grammeme which is always involved is the possession grammeme, the final grammeme in the possession phrase. The three nouns manifesting this grammeme which are involved in fusions are the three person indicators: ya² *first person*, ʔ *second person*, and nasalization *third person*.

The second grammeme involved is either the classifier grammeme within the possession phrase, or the noun head grammeme, if no classifier grammeme is present in the utterance. The fusion results in various systematic vowel changes in the nouns filling either of these two spots. These nouns exhibit analogous patterns of vowel changes under like circumstances when fused with one of the person indicators mentioned in the preceding paragraph. It is possible to describe these patterns of vowel changes and thus to eliminate a great amount of listing of forms which would otherwise be necessary.

Thus, nouns which end in e or ai (nasalized or not nasalized) have that final vowel replaced by æ (ą̈ if the original vowel was nasalized) before the first person indicator when fused with ya² *first person*. In like fashion, members ending in o have that unit replaced by ɔ and those ending in am become ǫ when fused with ya² *first person*. The resultant fusions are: æya, æya, ɔya ǫya.

When the morpheme manifesting the possession grammeme is ʔ *second person*, the morphemes involved are usually clearly segmentable. However, when the other morpheme involved ends in o, the fusion results in a vowel change to u before ʔ.

The situation is slightly more complex when the morpheme manifesting the possession grammeme is nasalization *third person*. Nevertheless, the fusion which results may still be phrased in terms of definite phonological patterns. If the morpheme manifesting the noun head grammeme ends in either an o or u, this phoneme is replaced by a, when it fuses with the third person nasalization. The resultant fusion is am (see **3.21.13.2**). In like fashion, i becomes ę, when fused with nasalization. In addition, all morphemes ending in glottals have variants with their final vowel repeated following the glottal when fused with this third person indicator and both of these vowels are nasalized. If the vowel preceding the glottal is o or u, an m occurs before the glottal when this noun is fused with third person nasalization. Likewise, when a morpheme ending in aiʔ is fused, an e follows the glottal with both vowel units nasalized. To state this in formulaic terms, note the following: i + ˛ > ę; o + ∘ > am; u + ° + am; iʔ + ˛ > ęʔę; eʔ + ˛ > ęʔę; aʔ + ˛ > ąʔą; oʔ + ˛ > amʔm; uʔ + ˛ > maʔm; aiʔ + ˛ > aįʔę.

One final situation involves morphemes containing a nd within them. When such morphemes fuse with nasalization *third person*, the d is dropped with possible syllabification of the preceding n of the morpheme. For example, nde + ˛ > ne or nne.

Specifically, then, we have a phonologically characterized division subclass within the basic noun class in which the specific criterion for membership in this division subclass which fuses with the person indi-

cators manifesting the possession grammeme, is the final vowel of the morpheme or the presence of a d within the morpheme. The specific resultant fusion is predictable for members with such a pattern in accordance with the formulas and explanations just given.

Some examples of these fused variants are: škyæ$^{2\text{-}3}$ya^{2} *my head* (<škye$^{2\text{-}3}$), tso^{3}-ndyɔ^{1}ya^{2} *my mother* (< tso^{3}ndyo^{1}), tsmæ$^{2\text{-}3}$ʔa^{2} *my possessed animate object, not human* (< tsmai^{3}ʔ), tso^{3}tæ^{3}ya^{2} *my father* (< tso^{3}te^{2}) ʔn^{4}dɔ^{3}ya^{2} *my mouth* (< ʔn^{4}do^{3}), tso^{3}ʔndyu^{2}ʔ *your mother* (< tso^{3}ndyo^{1}), tsmaj^{3}ʔę^{2} *his or her possessed animate object* (< tsmai^{3}ʔ), tso^{3}nne^{2} *his or her mother* (< tso^{3}nde^{2}).[20]

On many occasions there are variants of these fusions when the first person indicator manifests the possession grammeme. These variants consist of a manifestation without the ya^{2}, with the fused form remaining otherwise unchanged. This is possible without ambiguity because of the vowel change caused by the fusion. Examples of such variants are: škyæ$^{2\text{-}3}$ *my head* (for škyæ$^{2\text{-}3}$ya^{2}), tso^{3}tæ^{3} *my father* (for tso^{3}tæ^{3}ya^{2}), tso^{3}ndyɔ^{1} *my mother* (for tso^{3}ndyɔ^{1}ya^{2}), šʔæ^{1} *my foot* for šʔæ^{1}ya^{2}.

3.22.22. The second phonological division subclass involves a fusion of a noun head with the plural morpheme preceding it. The plural morpheme filling the plural spot in the noun phrase is n with phonemically conditioned phonological variants, such as the variant m, conditioned by occurrence adjacent to a morpheme with an initial p, and the variant nt, occurring before an s. There is also a morphemically conditioned variant, t.

Only members of Noun 3 may be involved in these plural fusions, since it is only these nouns which may be pluralized. A certain percentage of the members of this division subclass (Noun 3) may be clearly segmented when occurring contiguous to the plural morpheme, whereas the remainder are fused with the plural in such a manner that the border between the two spot fillers is not easily determined. Although only a certain group of Noun 3 is therefore involved in fusion with the plural grammeme, the total number of such fusions is still large. Just as in the possession fusions described above, the fusions which result from pluralization may be phrased in terms of definite phonological patterns which eliminates the necessity of extensive listings.

The patterns of fusions are determined by the initial consonant or consonant clusters of the fusing nouns together with the presence or absence of four conditioning factors within the nouns: glottalization, aspiration, diphthongization, and nasalization. Glottalization and aspiration seem to function along with nasalization and diphthongization rather than with the remainder of the consonants in determining patterns of fusion. A similar grouping of glottalization and aspiration with diphthongization and nasalization proves structurally relevant in verb patterns of fusion. The implications of these phonological features will be explained in connection with the discussion of specific patterns of fusion.

The first plural fusion pattern is found when the noun in the head spot begins with ts, tš, or š, except when these segments are followed by another consonant, diphthongization, or nasalization.[21] In the fusion with

[20] The third person form of *mother* in Amuzgo is irregular. The basic unfused form for third person is as indicated above, tso^{3}nde^{2}.

[21] Pluralization in Amuzgo could also be handled from several other approaches. One treatment would view the above-described phonological patterns of fusion as replacives. A variation of this approach would be to regard the phonological patterns as too complex to be treated as phonologically predictable and therefore to consider the plural morpheme to be composed of a number of morphologically alternating allomorphs, as follows: (C ← 1) ∞ (C ← n ∼ nk) ∞ (n ∼ m ∼ nt) ∞ (C ← nt) ∞ -en- ∞ t. The symbol, C, in the formula represents the initial consonant. In the second parentheses, nk occurs with stems beginning with š and n occurs elsewhere; in the third parentheses, m is before bilabials, nt before sibilants, and n elsewhere. This latter approach would

the plural morpheme, these consonant sequences are replaced by nt.

A second pattern of fusion includes all nouns in which the initial ts or s is followed by another consonant, aspiration, glottalization, or diphthongization, or when the initial segment is w. In such instances the fusion results in l in place of ts, s, or w.

The third pattern of fusion occurs when the noun beginning with ts or tš contains nasalization; when initial š is followed by k and nasalization; when the initial s is followed by n or t; or when the initial phonemes are hn. These consonants and consonant clusters are replaced by n in the fusion. Two other fusion patterns pertain to nouns beginning with š only. If the š is followed by k without nasalization within the noun, the fusion contains the sequence en following the š which is retained. However, if the š is followed by glottalization, aspiration, or diphthongization, it is replaced by nk in the plural fusion. In the case of hypermorphemes, the same patterns of fusion are found, involving both members of the hypermorpheme, if they are both members of division subclass Noun 3 when not occurring in hypermorphemic form, as anticipated in **3.22.14.2.**

The phonological patterns found in plural fusions may be illustrated and perhaps clarified by some examples. Some plural fusions involving simple nouns are the following: ntu^{3}ʔ *years* (< tšu^{3}ʔ *year*), l^{4}ka^{3} *candles* (< ska^{3} *candle*), lhɔ^{3}ʔ *rocks* (< tshɔ^{3}ʔ *rock*), 1ʔa^{4} *houses* (< wʔa^{4} *house*), nmaį^{3} *cats* (< tšmaį^{3} *cat*), nha^{4}m *towns* (< tsha^{4}m *town*), nkyę$^{3\text{-}2}$ *heads* (< škyę$^{3\text{-}2}$ *head*), še^{4}nko^{4} *doves* (< ško^{4} *dove*), nkio^{3} *plates* (< šio^{3} *plate*).

Examples of fusions which include hypermorphemes are: ka^{4}nti^{3} *eagles* (< ka^{4}tši^{3} *eagle*), ka^{4}lku^{2} *pigs* (< ka^{4}tsku^{2} *pig*), ka^{4}na^{4}m *alligators* (< ka^{4}tsa^{4}m *alligator*), ka^{4}nte^{2} *foxes* (< ka^{4}hnte^{2} *fox*), tai^{1}nkʔa$^{4\text{-}1}$ *coconuts* (< tai^{1}šʔa$^{4\text{-}1}$ *coconut*), lʔa^{4}nʔa^{2}m *churches* (< wʔa^{4}tsʔa^{2}m *church*).

A few of the fusions must simply be listed, since they do not follow the phonological patterns described immediately above. These are yo^{2} *people, humans* (< yu^{2} *person, human*), nna$^{2\text{-}1}$m *men* (< sʔa^{1} *man*), tai^{1}nhma^{1} *jicamas* (< tai^{1}tsma^{1} *jicama, a tuberous vegetable*).

3.4. Noun phrases play an important part in Amuzgo structure. The following grammemes may have noun phrases as their manifestation.

Actor (Noun x) is an obligatory grammeme in Uttereme I which may be manifested by a single noun or a noun phrase. This grammeme occurs in physical sequence following the action grammeme as a part of a hypergrammeme and has the structural meaning of "actor".

Goal (Noun x) is an optional grammeme in Uttereme I, which is yet statistically important. Occurring immediately after the actor grammeme, the goal grammeme has the structural meaning of "goal of action" and is manifested by either a single noun or by a noun phrase.

Another grammeme manifested by noun phrases or by a single noun is Item (Noun x), which occurs obligatorily in both Uttereme II and III. In both cases this grammeme occurs finally in the uttereme. The structural meaning of this grammeme is simply "item".

In Uttereme III, Identification (Noun x) is an obligatory grammeme, which occurs initially in the uttereme. A single noun or a noun phrase may manifest this grammeme. Other grammemes which may be manifested

result in further subdivision of the noun class, and seems to by-pass some relevant, though rather complex, structural patterns found not only in the nouns but also in the verbs. In addition, the approach described from the viewpoint of fusions fits much better into the grammemic approach in which indeterminate or fuzzy borders are left, without any attempt being made to force a decision regarding the border between the two. Grammemic theory maintains that the indeterminacy lies in the data, within the structure, and that any arbitrary attempt to segment the two morphemes does violence to the structure rather than clarifying it.

by noun phrases are the following optional ones in Utteremes I, II, and VII: location-direction, vocative, and response grammemes.

4. With this background of the noun phrase structuring, both in sequential terms and in terms of classes of units which fill the head spot of the phrase, we shall consider in this section much more briefly the way the nouns give us a clue to the class and phrase structuring of the rest of the language. Two general topics concern us here—the verb and the attributive.

4.1. Turning first to the verbs, certain striking parallels may be observed. First of all, the same general type of hierarchical structuring is observed in sequence, beginning with the verb phrase and pyramiding down to the morpheme or the hypermorpheme which forms the nucleus of the verb phrase.

4.11. The following formula presenting the grammemes manifested by the verb phrase will simply be stated and illustrated here, without further explanation. It is hoped that with the descriptions given above (**2.2**) for similar formulas the reader will be able to perceive the general pattern.

± Intensity (intensity) ± Negative-Aspect (negative b/Attributive Cc); ± Negative-Ability (negative a/Attributive Cb) ± Mode (Verb b/mode/Attributive Ca); ± Tense (tense) ± Plural (plural) + Verb Head (Verb) ± Degree Modifier (Noun Ha, b/Attributive Ba) ± Manner Modifier (Noun Hc, d/Attributive Bb).

Several general observations may be made regarding the internal structure of the verb phrase as reflected by this formula. Both noun and verb phrases contain plural grammemes and pre-modifying as well as post-modifying grammemes. The general contours of these two phrases are very similar.

An example of the verb phrase, filling the head and all the pre-modifying spots except the mode spot is: hę^{4} šo^{4} n^{1}dæ^{2} l^{4}ʔa^{3}ʔnna^{4} *(We) just can't read* (< hę^{4} *very*, šo^{4} *not*, n^{1}dæ^{2} *able*, l^{4}ʔa^{3}ʔnna^{4} *read, plural, future tense*). The tense, head and two post-modifying grammemes are manifested by the following verb phrase: t ha^{1} ti^{3} ku^{4}e^{3} *went down a little more* (< t *past tense*, ha^{1} *go*, ti^{3} *more*, ku^{4}e^{3} *down*).

4.12. Paralleling the role of the noun in the noun phrase, the most prominent unit of the verb phrase is the emic class bearing the same name as the phrase in which it occurs. Verbs are parallel to nouns in many ways. First of all, the alloclasses and emic subclasses of the verb class are similar in structure to those found in the noun class. For example, Verb Alloclass b, consisting of a grammemically conditioned alloclass of phonological variants, parallels Noun Alloclass f. Verb Alloclass b consists of only one member, tse^{4} *make*, which is an allomorph variant of tšʔe^{3} *make*. This alloclass is conditioned by the verb head grammeme when this grammeme is manifested by morphemically complex members. tse^{4} *make* occurs as the first member in such a hypermorphemic sequence and, as such, is statistically very prominent in the language. Over 150 separate hypermorphemes with tse^{4} *make* as the first member have been recorded. Note the following: tse^{4}lhai^{4} *write* (lit. *make design*), tse^{4}kio^{2} *drop* (lit. *make fall*), tse^{4}-hmaį^{2}ʔ *heat* (lit. *make hot*).

In like fashion, emic subclasses in the verbs resemble noun emic subclasses. For example, Verb Subclass A fills the attention spot in Uttereme I and consists of only two members, both of which are derived from the verb ndi^{4}ʔ *listen, hear*. They are: ndi^{4}ʔ *you listen* and nde^{3}ʔyo^{2}ʔ *you pl. listen*. The grammemic meaning modifies them to a certain extent so that they often perform the function of an intensifier. For example: kya$^{2\text{-}3}$l ʔua^{1}ʔ *Thank you.* kya$^{2\text{-}3}$l ʔua^{1}ʔ ndi^{2}ʔ *Thanks a lot.*

Verb Subclass C fills the head spot in the time phrase. Although some of the members of this subclass may occur in the present tense, the majority are only used when the past tense morpheme is also present. Ex-

amples are: ma^4 *be early*, wi^{4}bio^2 *becoming a long time*, wi^{4}sue^4 *becoming light*. wi^4 *becoming* is one of the classifiers found in morphemically complex verbs and has a fused past tense form, tai^4 *became*. Note: tai^{4}bio^2 t hą^1 *He went a long time ago* (< tai^{4}bio^2 *having become a long time*, t *past tense*, ha^1 *go*, nasalization *third person*).

In addition, verb classification is also made in accordance with relationships to other grammemes within the uttereme or with their manifesting members, just as in the nouns (division subclasses). One such instance involves occurrence with or without the personalizer-reflexive nde^3. Some verbs must be followed by nde^3, others never so occur, while still others may be followed by the personalizer morpheme but do not always so occur. An example from this latter group is tsu^1 which means *lose* (*something*) when not followed by nde^3 but used with nde^3 is translated as *get lost* (*or lose oneself*). Similarly, tš^{2}e^3 without nde^3 means *make* and with nde^3 means *become* (*or make oneself*). Also, hu$^{4?}$ is translated *throw* without nde^3 and *jump* (*throw oneself*) with nde^3.

Members of the verb class may be either simple or complex. Just as in the morphemically complex nouns, the pattern of classifier plus a specific morpheme in hypermorphemic sequence occurs in Amuzgo verbs. One such classifier is wa^2, which indicates the fact of some position of the body involved in physical activity. Examples are: wa^{2}tą^4 *lie on one's side*, wa^{2}ngi^{2}o^3 *bow*, *be prone*, wa^{2}škue^1 *embrace*, wa^{2}ntæ^1 *be on one's back*, wa^{2}tso^4 *sleep*, wa^{4}lho$^{2?}$ *mount*, *be on top of*.

Another parallel between nouns and verbs is in the matter of fusions (constituting phonological division subclasses). The same patterns of fusions found in the nouns are found in verb fusions when the verb manifesting the action grammeme fuses with the person indicators manifesting the actor grammeme. Even the variants for fusions with the first person indicator are found in the verbs as in the nouns. (See **3.22.21**). Some examples of these verb fusions are listed here, followed by the variants which occur when the first person indicator is involved. kɔ^3 ya^2 *I burn* or simply kɔ^3 *I burn* (< kɔ^3); l$^?$u^{4}æ$^{4\text{-}1}$ ya^2 or l$^?$u^{4}æ$^{4\text{-}1}$ *I look for* (< l$^?$ue^4); kwą$^{2?}$ą^2 *he eats* (< kwa$^{3?}$); ki^{3}a^{2}m$^?$m *he swallows* (< ki^{3}o$^{2?}$).

4.2. Attributive phrases. The noun class and phrase structuring furnishes clues for understanding the structure of the attributives, also. In similar fashion to the noun and verb phrases, the attributive phrase pyramids down to a morpheme-hypermorpheme class bearing the same name as the phrase. The attributive phrase has the general meaning of 'description'.

4.21. The formula representing the grammemic spots filled by the attributive phrase resembles the formulas for noun and verb phrases in containing both pre-modifying and post-modifying grammemes. Paralleling the verb phrase there are grammemes with the structural meaning of pluralization, intensity, negation, and degree. The formula is as follows: ± Intensity (intensity) ± State (state)/Negative (negative) ± Plural (plural) + Attributive Head (Attributive/Noun D) ± Personalizer (Noun Hb) ± Degree Modifier (Noun Hd).

One example of the attributive phrase, filling the intensity, negative, and head spots is: hę^4 ti^3 lhu$^{2?}$ *How very dirty (it is)!* (< hę^4 *very*, ti^3 *negative*, lhu$^{2?}$ *clean*). Another example in which the intensity, plural, head, and personalizer spots are filled is the following: hę^4 n$^?$ma^1 nne^2 *How big (they are)!* (< hę^4 *very*, n$^?$ma^1 *big*, *plural*, nne^2 *personalizer*, *third person plural*).

4.22. Within the attributive class, the same parallels to nouns may be noted as in the verbs. There are attributive alloclasses consisting of membership variants, phonological variants, and semantic variants. One example of these is Attributive Alloclass c, which, paralleling Noun Alloclasses c and d, consists of semantic variants. The members of Attributive Alloclass c are morphemically conditioned with the conditioning factor

one particular morpheme which manifests the item grammeme in Uttereme II. That morpheme is ts$^{?}$a^{2}m which means *viscera* or in a more general sense *heart*. In the conditioned uttereme ts$^{?}$a^{2}m itself is conditioned to mean merely *a person*. An example is: hę^{4} le^{3}nko^{3} ts$^{?}$a^{2}m *He's very happy* (< hę^{4} *very*, le^{3}nko^{3} *pretty*, ts$^{?}$a^{2}m *his heart*). Other members of this alloclass with their usual and conditioned meanings are as follows: tšho^{4} *small* > (*he is*) *sad*; hndɔ^{4} *strong* > (*he is*) *wise, understanding*; tæ^{4} *bitter* > (*he is*) *hard-hearted, unkind*; ka^{3}ndya^{3}$^{?}$ *burny* > (*he*) *loves*.

One example of the emic subclasses within the Attributive class consists of those members which fill the manner spot, such as: ha^{1}$^{?}$ *heavy*, tę^{1} *tight*, hndai^{4} *strong*, nde^{1} *high*, kwa^{2}hndi^{2} *bad, ugly*. Note: hndai^{4} n^{4} tse^{4}sua^{4} *I'll yell loud* (< hndai^{4} *strong*, n^{4} *future tense*, tse^{4}šua^{4} *yell*). hę^{4} nde^{1} uha^{4} w$^{?}$a^{4}hnde^{1} tšho^{4} *The little plane goes very high* (< hę^{4} *very*, nde^{1} *high*, uha^{4} *go*, w$^{?}$a^{4}hnde^{1} *airplane*, tšho^{4} *little*).

One group of morphemically complex attributives will illustrate the similarity in internal structure of attributives to the other two major classes in the language. The general classifier, ka^{4} with the broad meaning of *generalizer* occurs in complex forms with simple attributives or simple nouns. The function of ka^{4} as a generalizer may be clarified by noting the noun tši^{1} *sugar*. As a member of Noun Subclass D, tši^{1} *sugar*, may fill the description spot, and in this spot is grammemically conditioned to mean *sweet*. Contrasted with this is ka^{4}tši^{1} *sweet-smelling*, which is composed of ka^{4} generalizer plus tši^{1} *sugar* > *sweet*. ka^{4}tši^{1} is used to refer to flowers or freshly-baked bread. Other examples of morphemically complex attributives with ka^{4} generalizer are: ka^{4}lhai^{4} *designed* (lit. *generalizer, writing or design*), ka^{4}šue^{4} *shiny* (lit. *generalizer, light*), ka^{4}ndya^{4} *loose, wobbly* (lit. *generalizer, soft*).

5. There are three characteristics of Amuzgo grammar which are the most distinctive and significant. They are the hierarchical structuring of the language, which was the dominant theme; the functioning of emic subclasses of major classes as minor classes; and the absence of any structurally basic or clear-cut Morphology-Syntax dichotomy in Amuzgo. The following comments will summarize and further clarify these points.

5.1. The accompanying chart of Uttereme I provides a graphic sample representation of two phases of the hierarchical structuring in Amuzgo.

The first phase of hierarchical structuring is the pyramiding of lexical items from a

UTTEREME I

Grammemic Spot: →	+Action	+Actor	±Goal	±Manner	±Location-Direction	±Time	±Vocative	±Attention
Expanded Filler: →	Verb phrase	Noun phrase	Noun phrase	Attributive phrase	Location-direction phrase	Time phrase	Noun B phrase	—
Single Filler:								
morphemically complex: →	complex Verb	complex Noun	complex Noun	complex Attributive	complex Noun	complex Noun	complex Noun	—
morphemically simple: →	simple Verb	simple Noun	simple Noun	Attributive/ Noun	simple Noun	simple Noun	simple Noun	Verb A

single morpheme to larger and larger hypermorphemes. Note that a single verb may pyramid into a specific verb phrase and this in turn into a specific utterance.

The second kind of hierarchical structuring is the pyramiding which is also seen horizontally on the chart and is comprised of the optional basic accretion of grammemes to the hypergrammeme as a whole. Within either of the obligatory grammemes of the hypergrammeme and in any one of the accretion grammemes there may occur the minimum or maximum sequence types referred to as the first kind of hierarchical structuring.

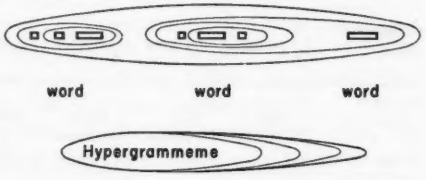
A third kind of hierarchical structuring is not seen on the chart but is comprised of the pyramiding of classes. Two or more subdivisions of an alloclass may comprise one of the alloclasses of an emic class. Similarly, two or more emic subclasses may comprise a single higher-layered emic class such as the noun. In addition, a hyperclass of such emic classes may constitute the sum total of the major distribution classes of the language (the total class comprised of verb, noun, and attributive). Note that in this hierarchy of classes the highest class as well as the lowest class may each be manifested by a single morpheme.

5.2. The second element of special interest in Amuzgo is an expansion of one component of the hierarchical structuring of the classes. In general, with a few residues (see footnote 2), there are only three major classes in Amuzgo—noun, verb, and attributive, but there are numerous emic subclasses comprised of a limited number of members from one or another of these classes respectively, which occur in special grammemic spots with special functions, and, in the process, often receive specialized meaning.

This feature in the language may be seen in the noun discussion above in which nouns such as šẽ²hndæ̃³⁻¹ *completed time or weight* > *after, afterwards*; ts?a³m *heart* > *inside of*; and ka⁴tsia³m? *honeybee* > *mischievous*, occur in the time, location, and description spots respectively. Verbs, likewise, exhibit this characteristic, such as in their occurrence in the time spot in which a past tense form such as tai⁴šue⁴ *having become light* designates when a certain action took place. An example from the Attributive class illustrating this phenomenon is Subclass C which fills the mode spot in verb phrases, denoting modes such as the following: hn⁴dæ̃⁴⁻² *completed* (*completive mode*) and n¹dæ̃² *able* (*abilitative mode*).

5.3. The following remarks summarize the most important considerations which led to the conclusion that no sharp-cut Morphology-Syntax dichotomy is basic to Amuzgo.

The first factor leading to an analysis without a basic sharp Morphology-Syntax dichotomy is the manner in which the minimum forms of the utteremes are expanded. This expansion is by accretion, expanding the hypergrammeme as a whole rather than the two parts of it separately. The nucleus is therefore expanded as a whole by a series of optional grammemes. The immediate constituents are not binary nor evenly balanced in size. Uttereme I, for example, simply expands by accretion, in essentially the manner illustrated in the first of the two following diagrams, in contrast to a language with a typical Morphology-Syntax dichotomy as represented in the second diagram.



Consequently, the morphemes come in at various levels of the uttereme rather than occurring within two clearly defined and structurally contrastive levels.

Secondly, the unusually high percentage of clitic-like morphemes in Amuzgo makes a Morphology-Syntax model highly imprac-

tical and unwieldy. For example, the three person indicators, ya^{2} *first person*, ʔ *second person*, and nasalization *third person*, are clearly phonologically dependent on the morphemes which they follow, yet they are on many occasions not grammatically tied to that particular morpheme. Note the following examples which illustrate the phenomena just described: ka^{4}so^{1} tšho^{4} tsmaį^{3}ʔę^{2} *his little horse* (< ka^{4}so^{1} *horse*, tšho^{4} *little*, tsmai^{3}ʔ *animate classifier*, nasalization *third person*, fused with the classifier). t ha^{1} ti^{3} ku^{4}ę^{3} *He went down a little more* (< t *past tense*, ha^{1} *go*, ti^{3} *more*, ku^{4}e^{3} *down*, nasalization *third person*).

Another clitic morpheme is tšę^{3} *distance*, which manifests the distance grammeme in both the time and the location-direction phrase.[22] This morpheme is a grammemically conditioned phonological variant of the noun morpheme tšʔę^{3} *outside*. See section 3.21.13.1. Examples of its use are as follows: hn^{2}dæ$^{2-3}$ tšę^{3} t hą^{1} *He went clear out to the monte* (< hn^{2}dæ$^{2-3}$ *monte*, tšę^{3} *distance*, t *past tense*, ha^{1} *go*, nasalization *third person*). mʔą^{2} tso^{3}te^{1}ʔ tšę^{3} n^{4} ku^{4}e^{1} ʔ *You'll go where your father is* (< mą^{2} *is*, tso^{3}te^{1}ʔ *your father*, tšę^{3} *distance*, n^{4} *future tense*, ku^{4}e^{1} *arrive, go*, ʔ *second person*).

A fifth clitic is the first member of morphemically complex nouns, na^{2} *thing, nominalizer*, which is a grammemically conditioned phonological variant of ʔnna^{4} *thing*. na^{2} *thing* serves as a nominalizer not only of single morphemes, but also of entire clauses. As such, it causes the entire unit to act as a single item within the uttereme, a morphemically complex noun. Examples that illustrate this are as follows: na^{2} mʔą^{3} ʔu^{3} hn^{2}dɔ$^{2-3}$ hn^{2}da$^{2-3}$ ya^{2} *I've come where you are, my daughter* (< na^{2} *nominalizer*, mʔą^{3} *is*, ʔu^{3} *second person*, hn^{2}dɔ$^{2-3}$ *I came*, hn^{2}da$^{2-3}$ *child*, ya^{2} *first person, my*). In this example na^{2} mʔą^{3} ʔu^{3} *where you are* acts as a single noun manifesting the location-direction grammeme. yo^{2}mʔą^{1}ʔ šę^{2} ti^{2} šo^{3} n^{1}dæ^{2} ntsa^{3}ʔ na^{2} lʔue^{2} nʔa$^{3-2}$m l^{4}ʔa^{2}ku^{4}e^{3} ʔu$^{3-1}$ *If you don't do what they want, they will kill you* (< yo^{2}-mʔą^{1}ʔ *they, at a distance*, šę^{2} *weight* > *if*, ti^{2} *negative*, šo^{3} *negative ability, can't*, n^{1}dæ^{2} *able*, n *future tense*, tsa^{3}ʔ *you do*, na^{2} *thing, nominalizer*, lʔue^{2} *look for*, nʔa$^{3-2}$m *their hearts*, l^{4}ʔa^{2}ku^{4}e^{3} *will kill*, ʔu$^{3-1}$ *second person*). In this example, na^{2} lʔue^{2} nʔa$^{3-2}$m *what they want* acts as a single noun manifesting a goal grammeme.

If, in spite of these facts, one wishes to handle the Amuzgo data with reference to a crucial dichotomy between Morphology and Syntax, the morphemically complex nouns would be treated as compounds in the morphological level. But to set up a complex theoretical division between Morphology and Syntax as the most important structural division in the language would introduce a sharp unwarranted distortion in the structure inasmuch as these morpheme complexes are just one in a series of expanding levels within the total hierarchy rather than a particularly crucial one, sharply distinct from all the others. In addition, if a Morphology-Syntax dichotomy were postulated, certain of the fused person indicators and plural and tense components would at times appear as affixes, but because of the data referred to in the last paragraphs regarding clitics they could not always be treated usefully in this way.

Therefore, the odds and ends which could conceivably be treated on a Morphological level fail to show any total structural coherence which would allow one to postulate a Morphology system in balance with a Syntax system, but they rather exemplify sporadic and non-systematic lexical fusions (the 'compounds') and phonological fusions (the fused clitic morphemes). Since the term 'word' has been so generally used to imply top-level units of the Morphological layering, we have avoided the term 'word' so as not to make this implication. If, however,

[22] The formulas for these two phrases are as follows: Time phrase = +Time Head (Noun Cx/ Verb Cx/ Uttereme I/II/III) + Distance (Noun K/ Verb E). Location-Direction phrase = +Location-Direction Head (Noun Ax/ Uttereme I/II) + Distance (Noun K/Verb E).

the word were redefined so as to eliminate the Morphology-Syntax implication, the paper could be rewritten, replacing the term 'morpheme' by 'word', but the resultant appearance of the description would appear strange to the person who rather expects 'words' to be neatly separated by spaces in the orthography, since some of the written morphemes here are orthographically fused.

In summary, then, the following statements may be made regarding the over-all structural picture of Amuzgo. Negatively, it does not show a sharp threshold below which is a complicated word morphology and above which a simple syntax in terms of these sub-threshold groups, but rather the very basic elements enter again and again into the structure at distinct levels of the hierarchy. The structural hierarchy expands in two ways: first, by adding further non-included grammemes which gets one to a higher layer in the sentence type and secondly, by expanding an included grammeme which keeps one on the same level. There are several sentence types each of which has a minimum small nucleus which has accretion expansion by further grammemes which in turn may be heavily expanded. These sentence types in turn constitute the included components of higher-layered structures. In addition, the class structure is such that a few of the classes have widespread functions translatable by English particles and limited in membership by the grammemes they manifest.

POCOMCHI VERB STRUCTURE

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0. Introduction
1. Verb expression unexpanded
1.1 Verb
1.2 Stem
1.3 Root
2. Verb expression expanded

0. In the following discussion, the structuring of the verb of Pocomchi[1] is discussed. This has been done using the general terms and concepts of behavioremic theory, more specifically relating this theory to language through utteremic theory, one phase of behavioremic theory. This must be done since the uttereme is a verbal behavioreme (the significant structural unit of behavior in any given culture). This theory, of the structuring of behavior in general, and of language in particular, is propounded by Kenneth L. Pike in his book Language, in Relation to a Unified Theory of the Structure of Human Behavior. (Part I, Glendale, California, 1954).

Pocomchi words comprise three hyper-classes[2] of words: a class of nouns, a class of classes of particles, and a class of verbs. All three hyper-classes are differentiated by the spots they fill in various utteremes. Nouns and verbs are more particularly differentiated by the classes of affixes occurring with the root.[3]

In this discussion of that part of the grammar of Pocomchi relating to verbs, the relation of the verb to the larger structural or emic units (uttereme, grammeme) will be discussed; and then the relation of the verb to the smaller emic units contained within the verb (included grammemes, classes of morphemes) will be discussed.

It is significant that, although of necessity a linear presentation of the data is made, it is impossible to convey thus the high complexity of the language. There is on every level a pyramiding of the data involved and a linear presentation does not adequately show the interpenetration (expressed by Pike as "wheels within wheels") of different structuring on all levels throughout the language.

An uttereme is an emic, or structural sentence type in a given language: Uttereme IA in Pocomchi[4] in minimal form equals +Predicate$^{\text{transtive verb expression}}$, and in its principal expanded form equals ±Actor$^{\text{noun expression}}$ +Predicate$^{\text{transitive verb expression}}$ ±Object$^{\text{noun expression}}$ ±Location$^{\text{particle expression}}$: in rik?ul[5] *he receives it*, in

[1] Pocomchi is a member of the Maya family of languages, most closely related to Cakchiquel and K'ekchi. It is spoken in Guatemala, Central America, by 25,000 Indian speakers. They live in an area about fifty square miles in size, located about one hundred miles directly north of Guatemala City, the capital city of Guatemala. Principal informant work for the discussion to follow was carried on in the Pocomchi village of Tamahú, during the years from 1953–5. Principal informants were Prudencio Ixim, Ricardo Ixim, Mariano Pope and Felipe Kex. The writer wishes to express his thanks to Dr. Kenneth Pike, John Crawford and Joe Grimes for their many suggestions aiding in analysis, and presentation of the material.

[2] Pike, Language, 1954, p. 64.

[3] Noun prefixes parallel the transitive person prefix listed in Sec. 1.1. Examples of noun suffixes are: -al *agent, instrument*; -bal *place, instrument*; -el, -nel *agent.*

[4] Uttereme IB obligatorily occurs without an Object$^{\text{noun expression}}$ grammeme. The Predicate spot is filled by a class of morphemes and hyper-morphemes labelled intransitive verb expression. Uttereme IC obligatorily occurs without an Object$^{\text{noun expression}}$ grammeme, and when other grammemes occur with the Action$^{\text{verb expression}}$ grammeme, they occur preceding it.

[5] The phonemes of Pocomchi are: p, t, k, ?, t?, k?, q, q?, b, s, š, ɬ, ɬ?, č, č?, m, n, l, r, y, w, x h, a, a·, i, i·, e, e·, u, u·, o, o·.

rik?ul paket *he receives the package*, in rik?ul packet ayu? *he receives the package here*, re winaq in rik?ul paket ayu? *the man receives the package here.*

A grammeme is a structural unit of the uttereme consisting of an emic spot and the filler of that spot: Actor$^{\text{noun expression}}$ re winaq *the man*; Predicate$^{\text{transitive verb expression}}$ in rik?ul *he receives it.* The grammeme Actor$^{\text{noun expression}}$ occurs optionally in the Uttereme IA and contains the class of morphemes and hypermorphemes symbolized as noun expression. The grammeme Predicate$^{\text{transitive verb expression}}$ occurs obligatorily in the Uttereme IA, and contains the classes of morphemes and hyper-morphemes symbolized as transitive verb expression. The classes of morphemes and hyper-morphemes occurring as fillers of emic spots manifest[6] the grammeme within which they occur.

Classes of morphemes and hyper-morphemes are comprised of those morphemes and hyper-morphemes that occur as filler of an emic spot: noun expression manifests the grammeme Actor$^{\text{noun expression}}$, re winaq *the man*; transitive verb expression manifests the grammeme Predicate$^{\text{transitive verb expression}}$, srik?ul *he received it.*

Verb expression[7] may refer to the simple verb (verb root plus affixes) as well as to an expanded form (see **2**) including nouns and particles within the expansion.

1.1 The verb is defined as a class of classes of morphemes and hyper-morphemes occurring as unexpanded filler in Predicate$^{\text{verb expression}}$ grammemes, obligatorily occurring in Utteremes I.[8]

The verb is also head of class one, two, three and five expanded fillers of the predicate spot, namely of an expanded verb expression (see **2**). The verb also occurs in subordinate relationship to the noun head in class four expanded fillers. (See **2.**) The class of classes of morphemes and hyper-morphemes which we have labelled verbs has an internal grammemic structuring characteristic of and peculiar to this class. A verb is the minimal manifestation of a verb expression. It is composed of a verb stem as head, with or without inflectional affixes. The verb stem is the minimal manifestation of a verb. It is composed of a verb root as head, with or without derivational affixes. The verb root is the minimal manifestation of the verb stem (and thus of the verb and thus in turn of the verb expression).

There are three classes of verbs: transitive, intransitive, and stative. These are differentiated by their external distribution: (1) as to the other grammemes in an utterme with which they occur (i.e. only the grammeme Predicate$^{\text{transitive verb expression}}$ may occur with the grammeme Object$^{\text{noun expression}}$ in utteremes of Type I); and (2) as to the other grammemes in an expanded verb expression with which they may occur. (See **2.**) They are further differentiated (3) by the classes of verb stems occurring within the verb: transitive, intransitive and stative; and (4) by the subclasses of inflectional affixes occurring with the verb stem (i.e. past tense and person number prefixes and aspect suffixes).

Transitive verbs are composed of transitive verb stems plus the subclasses of inflectional affixes which occur with transitive stems. The formula for the transitive verb is +Predicate-1$^{\text{transitive verb expression}}$ (±Tense [past

[6] Pike, Language, p. 40.

[7] Noun expressions may be expanded with particles occurring with the noun. Particle expressions may be expanded with other particles occurring with the particle head, and with nouns occurring in subordinate relationship to the particle head.

[8] There is a second major class of utteremes occurring with obligatory Quality$^{\text{particle expression}}$ or Actor$^{\text{noun expression}}$ grammemes rather than an obligatory Predicate$^{\text{verb expression}}$ grammeme. Other classes of utteremes include negative utteremes, emphatic utteremes, response utteremes and compound utteremes.

tense prefix][9] ±Person [transitive person prefix] + Verb Head [intransitive verb stem] ±Inflection [transitive suffixes]).

Intransitive verbs are composed of intransitive verb stems, and the subclasses of inflectional affixes which occur with the intransitive stems. The formula for the intransitive verb is: +Predicate-2intransitive verb expression (±Tense [past tense prefix] ±Person [intransitive person prefix] + Verb Head [intransitive verb stem]).

Stative verbs are composed of stative stems.[10] The formula for the stative verb is: +Predicate-3stative verb expression.

The grammeme Predicate-1transitive verb expression occurs obligatorily in Uttereme IA. The grammeme Tensepast tense prefix occurs optionally in the grammeme Predicate-1transitive verb expression, and Predicate-2intransitive verb expression. The grammeme Persontransitive person prefix occurs optionally in the grammeme Predicate-1transitive verb expression. The grammeme Inflectiontransitive suffixes occurs optionally in the grammeme Predicate-1 transitive verb expression.

The grammeme Predicate-2intransitive verb expression occurs obligatorily in Uttereme IB. The grammeme Personintransitive person prefix occurs optionally in the grammeme Predicate-2intransitive verb expression. The grammeme Verb Headintransitive verb stem occurs obligatorily in the grammeme Predicate-2intransitive verb expression.

The hyper-grammeme Predicate-3stative verb expression occurs obligatorily in Uttereme IC. It is composed of close knit Stem Headtransitive/intransitive root and Stativestative suffix.

[9] Tense, other than past tense, is indicated by the use of particles occurring preceding the verb: nel *indefinite future tense* occurs with the incompletive aspect of transitive verbs and all intransitive verbs; na *definite future tense* occurs only with completive aspect of transitive verbs, and all intransitive verbs; k?ahči *present continuative* occurs with completive aspect of transitive verbs and with intransitive verbs; in *present completive* occurs only with transitive verb expressions incompletive aspect.

[10] Person of stative verbs is indicated by the use of person particles following the stative stem.

The class of morphemes and hyper-morphemes labelled transitive verb expression manifests the grammeme Predicate-1transitive verb expression: šnik?ul *he received it.* The class of morphemes labelled past tense prefix manifests the grammeme Tensepast tense prefix: š- *past tense indicator.* The class of morphemes labelled transitive person prefix manifests the grammeme Persontransitive person prefix: ni- *1st pers. sg.* The class of morphemes labelled transitive verb stem manifests the grammeme Verb Headtransitive verb stem: -k?ul *to receive,* -box *to nail.* (See **1.2.**) The class of morphemes labelled transitive suffixes manifests the grammeme Aspecttransitive suffixes: -Vm ~ -m *completive aspect suffix.* The class of morphemes and hyper-morphemes labelled intransitive verb expression manifests the grammeme Predicate-2intransitive verb expression: šinčalik *I came.* The class of morphemes labelled intransitive person prefix manifests the grammeme Personintransitive person prefix: im- *I,* at- *you.* The class of morphemes and hyper-morphemes labelled intransitive verb stem manifests the grammeme Verb Headintransitive verb stem: čalik *comes.* (See **1.2.**) The class of hyper-morphemes labelled stative verb expression manifests the hyper-grammeme Predicate-3stative verb expression: čunul *to be seated.* (See **1.2.**)

š-[11] is the only member of the class of morphemes labelled past tense prefix. Members of the class of morphemes labelled transitive person prefix are: ni- ~ w- *I,*[12] na- ~ aw- *you,* ri- ~ r- *he, she,* qa- ~ q- *we,* na- ~ aw- *you pl.,* ki- ~ k- *they.* Members of the class of morphemes labelled transitive suffixes will be discussed individually. Aspect suffixes are of two subclasses: -? ∞ -x

[11] Shape types of the verb affix: V, a- *you* transitive; VC -ic intransitivizer suffix; C r- *he, she* with transitive stems vowel initial; CV ni- *I* transitive; CVC -nik infinitive suffix for class three transitive stems.

[12] The first allomorph listed occurs with stems beginning with a consonant, the second allomorph with stems beginning with a vowel.

incompletive aspect suffix, -Vm ~ -m[13] *completive aspect suffix*: in nik?ula·? *I accept it* (*incomplete*). Causative suffix is -rik, occurring with class one transitive verb stems: kamarik *to cause to be called*. Participial suffix is -nik, occurring with class three transitive verb stems: kamsanik *killing*. Members of the class of morphemes labelled passive suffix are of four subclasses, differentiated by the class or classes of transitive stems with which they occur: -max occurs with all three classes of transitive verb stems: yoka·max čik *to be laid down*; -lik occurs with class one and two transitive stems: ɬ?aplik *to be closed*; -ox, -Vm, -naq occur with class one and three of the transitive verb stems: tehox čik *it is open*; -xik, -tesxik occur with class three only of transitive stems: škamtesxik *he was killed*. Members of the class of morphemes labelled intransitive person prefixes are: kin- *I*, ti- *you*, in- *he, she*, qox *we*, ti- *you pl.*, ki- *they*, which occur with the present and future tenses of intransitive verbs: and in- *I*, at- *you*, ox- *we*, at- *you pl.*, i- *they*, which occur with the past tense of intransitive verbs.

1.2. There are three classes of verb stems: transitive, intransitive and stative. These are differentiated by the spots each fills in the verb, by the classes of roots occurring as head of the stem, and by the classes of derivational affixes occurring with the stem.

Transitive verb stems occur as head of transitive verbs, namely in those verbs filling spots in utteremes of IA. Transitive stems contain transitive roots as head. Classifier suffixes occur with the transitive root within the stem to differentiate three classes of transitive stems. The formulas for the three classes of transitive verb stems are:

[13] -? occurs with class two stems, -x occurs with class three stems, -Vm occurs with class one stems, -m occurs with class two and three stems.

Class one, +Verb Head$^{\text{transitive verb stem}}$ (+Stem Head [transitive root]);

Class two, +Verb Head$^{\text{transitive verb stem}}$ (+Stem Head [transitive root] + Classifier [classifier suffix-1]).

Class three, +Verb Head$^{\text{transitive verb stem}}$ (+Stem Head [transitive root] + Classifier [classifier suffix-2]).

The grammeme Stem Head$^{\text{transitive root}}$ occurs obligatorily in the grammeme Verb Head$^{\text{transitive verb stem}}$. The grammeme Classifier$^{\text{classifier suffix-1}}$ occurs optionally alternating with grammeme Classifier$^{\text{classifier suffix-2}}$ in the grammeme Verb Head$^{\text{transitive verb stem}}$. The grammeme Classifier$^{\text{classifier suffix-2}}$, which is recorded by the use of the numeral 2 to be different from the grammeme Classifier$^{\text{classifier suffix-1}}$, occurs optionally alternating with the grammeme Classifier$^{\text{classifier suffix-1}}$ in the grammeme Verb Head$^{\text{transitive verb stem}}$. This grammeme may occur in its simple form of Classifier$^{\text{classifier suffix-2}}$ or with an expanded filler labelled ± Qualifier$^{\text{qualifier suffix}}$ + Classifier$^{\text{classifier suffix-2}}$.

The class of morphemes labelled transitive root manifests the grammeme Stem Head$^{\text{transitive root}}$: -k?ul *to receive*, -teh *to open*. (See **1.3.**) The class of morphemes labelled classifier suffix-1 manifests the grammeme Classifier$^{\text{classifier suffix-1}}$: a· *volitional indicator*. The class of morphemes labelled classifier suffix-2 in its simple form, and in its expanded form (qualifier suffix plus classifier suffix-2) manifests the grammeme Classifier$^{\text{classifier suffix-2}}$: -a *classifier suffix*, -b *qualifier suffix intensifying physical action*.

The suffix -a· *volitional suffix*, is the only member of the class of morphemes labelled classifier suffix-1. Members of the class of morphemes labelled classifier suffix-2 are -a, -e, -i. Members of the class of morphemes labelled qualifier suffix in the expanded filler of the Classifier$^{\text{classifier suffix-2}}$ grammeme, go with: (1) all verbs with which -b, -k, -k?, -q, -x, -l, -n occur to indicate intensity of simple physical processes; (2) all verbs with which -t occurs to indicate mental process;

(3) all verbs with which -r, -w occur to indicate emotional processes; (4) all verbs which occur with -s to indicate that the objects existed in a previous physical state opposite to the one indicated by the action of the verb (i.e. imply that the object is being changed from one physical state to another).

The infinitive of the transitive verb is formed with the transitive verb stem plus the infinitive suffix. Infinitive suffixes occurring with class one transitive verb stems are -ox ~ -ux:[14] tehox *to open*; and occurring with class two and three transitive verb stems -nik: mehranik *to hug*.

The imperative of transitive verbs is formed by the use of či with the transitive incompletive verb, second person singular: či *imperative* + ateh *you open* = čateh *open it*!

Intransitive verb stems occur as head of intransitive verbs, namely in those verbs filling spots in utteremes of IB. Intransitive stems are composed of intransitive/transitive roots as head of the stem, and of intransitive suffixes with the root. The formula for the intransitive verb stem is: +Verb Head$^{\text{intransitive verb stem (+Stem Head [transitive/intransitive root] + Intransitive [intransitive suffix])}}$.

The grammeme Stem Head$^{\text{transitive/intransitive root}}$ occurs obligatorily in the grammeme Verb Head$^{\text{intransitive verb stem}}$: -čal *to come*. (See **1.3.**) The grammeme Intransitive$^{\text{intransitive suffix}}$ occurs optionally in the grammeme Verb Head$^{\text{intransitive verb stem}}$ in close knit relationship to the grammeme Stem Head$^{\text{transitive/intransitive root}}$: -ik *intransitive suffix*.

The class of morphemes labelled intransitive suffix manifests the grammeme Intransitive$^{\text{intransitive suffix}}$.

Members of the class of morphemes labelled intransitive suffix are: -ik *intransitive suffix* occurring with all tenses other than the absolute future; -oq *intransitive suffix* occurring with the absolute future tense: -en occurring with class 2 imperatives.

The intransitive verb stem is used as the intransitive infinitive. The imperative of intransitive verbs is formed (1) by the use of the second person singular form of the absolute future tense of subclass 1 intransitive roots: tiwiroq *sleep*; (2) by the addition of the first order suffix -en to the intransitive roots of subclass 2: wukten *wake up*.

The stative stem occurs as head of stative verbs, namely those verbs filling spots in utteremes of Class IC. It contains in close knit relationship the verb root, either transitive or intransitive and the stative suffix. The formula for the stative stem is +Verb Head$^{\text{stative stem (+Stem Head [transitive/intransitive root] + Stative [stative suffix])}}$. The grammeme Stem Head$^{\text{transitive/intransitive root}}$ occurs obligatorily in the hyper-grammeme Verb Head$^{\text{stative verb stem}}$. The grammeme Stative$^{\text{stative suffix}}$ occurs obligatorily in the hyper-grammeme Verb Head$^{\text{stative verb stem}}$.

The class of morphemes labelled transitive/intransitive root manifests the grammeme Stem Head$^{\text{transitive/intransitive root}}$: -teh *to open*, -čun *to sit*. (See **1.3.**) The class of morphemes labelled *stative suffix* manifests the grammeme Stative$^{\text{stative suffix}}$. -Vl[15] *stative suffix* is the only member of this class of morphemes.

1.3. There are two class of roots[16] occurring with verbs, the transitive and intransitive. Transitive roots manifest transitive stems and occur with transitive affixes. (See **1.2.**) They may occur in intransitive and stative stems. To intransitivize a transitive root, add the intransitivizer

[14] -ux occurs when the root vowel is u, -ox occurs elsewhere.

[15] -Vl refers to a suffix with a vowel occurring in vowel harmony with the root vowel and l.

[16] The shape type of simple verb roots may be: CVC -beh *to walk*, CVCVC -kemel *to rent*, CVCCVC -taqči? *to consign*, CVCC -qehb- *to grab*, VC -ox *to go*, VCVC -ušis *to bless*, VCCVC -eht?al- *to know*, VCVCVC -uč?ihil- *to accompany*. Compound verb roots may contain any two combinations of these simple roots.

suffix to the transitive root and use the intransitive prefixes. Intransitive roots manifest intransitive stems and occur with intransitive affixes. (See Sec. **1.2**). Intransitive roots may also occur in stative stems. To transitivize an intransitive root, add the intransitivizer suffix to the root and use the transitive prefixes.

2. A transitive or intransitive verb may be expanded (1) by the use of tense particles preceding the verb: -k?ul *receive*, nik?ul *person prefix plus root*, in nik?ul *I receive it* (in *tense particle, present*); (2) by the use of qualifying particles following the verb: šnik?ul chic *I already received it* (š- *past tense prefix*, nik ul *person prefix plus root*, chic *definite particle*); (3) by the use of additional verbs following the main verb: irax rik?ulum *he wishes the receiving of it* (cf. irax *he wishes*, rik?ulum *he receives it*). (4) A transitive verb may also be explained by the use of nouns or derived nouns with the verb: k?ahči ra?anam čexol maš *he is dancing the mask dance* (cf. k?ahči ra?anam *he is doing*, čexol *he, dancer*, maš *mask dance*). (5) Stative verbs may be expanded by the use of person particles following the verb: čuhnul kin *I am seated* (cf. čuhnul *seated*, kin *I*).

A SYNTACTICAL ANALYSIS OF AN AMUESHA[1] (ARAWAK) TEXT

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0. Introduction
1. Amuesha text with syntactic analysis
2. Free translation

0. Here is presented a syntactic analysis of one version of an Amuesha folk tale. The text was recorded on tape as told by a middle aged Amuesha speaker, Catalina Juana, in October 1954, at Raya Quebrada, Río Palcazú, Perú, S. A. It was transcribed shortly thereafter verbatim off the tape with the help of another informant, a young woman, Miguela Cruz.

Each word is identified by its particular sentence function, and by its own morphological word class[2] fulfilling that function. Immediate constituents are identified by means of bracketing.

The material is presented by numbered sentences in series of three lines each. The first line is the syntactic identification line, identifying each word by its sentence function and the word class to which it belongs, filling that function. Word boundaries are indicated in this line by semicolons unless otherwise marked by the beginning or end of parentheses, brackets, or braces; commas separate sentence function from word class. Immediate constituents are shown by means of parentheses showing the first levels, with numbered brackets showing progressively higher levels, and with braces showing the highest level. The second line is the Amuesha text, and the third is a semiliteral English translation of the text.

When several English words serve to translate the same Amuesha word, these are joined by hyphens. A free translation appears at the end of the analysis, with matching sentence numbers. Dots indicate incomplete utterances, or hesitation-word or hesitation-phrase utterances.

The following word-function symbols are used: Ap—appositive, At—attributive, AxV—auxiliary to the verb, C—conjunction, DA—direct address, Ij—interjection, IO—indirect nominal object, Ir—interrogative, L—locative, Ng—negative, O—direct nominal object, P—predicate, Ps—possessor, R—relative, S—subject, S_2—predicate nominative, T—temporal.

The following word class symbols are used: At—attributive, D—demonstrative, Ij—interjection, Ir—interrogative, L—locative, N—noun, Ng—negative, Nm—number, Pr—pronoun, Pt—particle, R—relative, T—temporal, V—verb, V/O_2—verb with affixial direct object pronoun, V/O_2IO_2—verb with affixial direct object pronoun and indirect object pronoun.

As seen in this text (but further functional relations may be found in other texts) the respective relationships between functions and their fillers are seen in the following list. For example, read the first entry—Ap by D, N—as 'appositive function may be filled by demonstrative or noun': Ap by D, N; At by At, D, V, Pt; AxV by Pt, V; C by Pt; DA by N; Ij by Ij; IO by N; Ir by D, Ir, V; L by N, L, D, V; Ng by Ng, D; O by

[1] Phonemic orthography in this paper differs from Fast's in "Amuesha (Arawak) Phonemes", IJAL 19: 191–94 (1953), by replacing /š/ with /šʸ/, by writing [h] preceding another consonant as /h/ instead of /x/, by adding the phoneme /kʸ/, and by considering stress non-phonemic.

Amuesha has been classified as Arawakan, and the only extant language of Panatahuan stock by McQuown in "Indigenous Languages of Latin America", American Anthropologist, Volume 57, Number 3, Part 1, June 1955, p. 563. Our conservative estimate is 1,000 speakers, many of whom are monolingual.

[2] For the use of her unpublished data on morphological word classes, and various valuable suggestions, I am indebted to my co-worker, Mary Ruth Wise.

N, Nm, Pr; P by V, V/O_2, V/O_2IO_2, Pt; Ps by N; R by R; S by N, D, Pr; T by D, T, V, At, Pt.

In the following listing of the sentences of the text, a simplified form of these function-filler formulas is used: the word "by" is replaced by a comma. Since in any one example in the text only one filler can occur, there is no confusion with the formulas listed above. Thus, in sentence 1 below, S, N means subject function filled by noun.

1. 1. {(S, N.; Ap, D) [$_2$(AxV, Pt; P, V) [$_1$O, N (Ps, N; Ap, N)$_1$]$_2$]} enkpa? añ o? yo·ra po?señ yo·s yahtyo·s *Inca this-one already he-took his-daughter god our-god.* 2. (At, At; P, V) ata·z acze?ma *Much he-angry.* 3. (At, At; P, V) ata·z acze?ma *Much he-angry.* 4. {S, N (P, V; O, N)} enkpa? čohta?ta·n ya·čo·r *Inca he-beat our mother.* 5. {P, V/O_2 (O, N; Ap, N)} čena?te·ñ ya·čo·r pala *He-being-jealous-of-her our-mother Pala.* 6. {[(O, N; Ap, N) Ap, D] P, V} ya·čo·r pala añma yo·rapa? *Our-mother Pala this-one he-took.* 7. {At, At (AxV, Pt; P, V/O_2)} ata·z o?č čohta?te·ñ *Much will he-be-beating-her.* 8. P, V oze·neht *Drinking-they.* 9. (D; . . . P, V) añma . . . koša·me·neht *This . . .making-merry-they.* 10. (L, D; P, V/O_2) alohčʸ kočʸe·ñ *Therefrom he-following-her.* 11. (T, D; P, V/O_2) alempo·pa? čohta?te·ñ *Then he-beating-her.* 12. P, V/O_2 čohta?te·ñpa? *He-beating-her.* 13. P, V be?čʸo·spa? *She-enter-there.* 14. {Ng . . . (Ng, Ng; P, V)} ama . . . ama mono *Not . . . not he-went.* 15. (P, V; P, V/O_2) ot nokčʸe·rča? *He-say I-follow-her-will.* 16. {P, V-[3] [$_2$(. . . S, D; Ir, D . . .) [$_1$S, N (Ap, N; Ap, N)$_1$]$_2$]— (Ng, Ng; P, V/O_2)} ote·nña . . . añma eso?tčʸe? mopo·l kornehša? mopo·l amačča? čohta?ta·ctapʸ *He-saying-yes . . . this-one what-might-it-be . . . Mopool chief Mopool not-will he-beat-bad-you.* 17. (Ng, Ng; P, V/O_2) amač pe?mño·če *Not you-listen-to-him.* 18. {[T, T (AxV, Pt; T, V)] AxV, Pt; P, V/O_2)} ca·pahčʸpa? o?č pʸe·ta·re·npa? o?č na·ne·nepʸ *Tomorrow will it-being-morning will I-be-taking-you.* 19. {(AxV, Pt; P, V/O_2) L, N} o?č nehna?ne·nepʸ pehša·lepno *Will I-be-leaving-you at-your-mountain-name-sake.* 20. {L, D [(AxV, Pt; P, V) L, N]} alohčʸñapa? o?č a·we·zepʸ pepa·pa·rešo *There-from-yes will go-back-you to-where-your-father-is.* 21. (At, At; P, V/O_2) ata·z e?mo·ñe?te·nepʸ *Much he-being-mad-at-you.* 22. {(At, At; P, V) O, N} ata·z pehpehča? tahte·n ya?zo·mñahčʸe·r *Much you-cause-cutting-off-(the heads) our-dead-ones.* 23. (At, At; P, V/O_2) a·tčʸa oč *Thus he-say-to-her.* 24. {T, D [T, V (AxV, V; P, V)]} alempoñapa? arehpe·npa? a·we·n mo·zehčne·na *Then-yes it-going-on-all-night it-going-on he-singing.* 25. (T, D; P, V) alempoñapa? ote·n *Then-yes he-saying.* 26. (AxV, V; P, V) a·wo? mo·zehča *He-went he-sang.* 27. (AxV, V; P, V) a·wo? ot *He-went he-said.* 28. {AxV, V (. . . Ir, D; . . . P, V/O_2)} a·wo? . . . eso?tčʸe? . . . otaçre?č *He-went . . . what-might - it - be . . . he - made - fun - of - him - in-song.* 29. {(AxV, V; P, V) [$_3$(N; N) [$_2$(N; N . . .) [$_1$(P, V; O, N) (N; N)$_1$]$_2$]$_3$]} a·wo? ot enkapo·ña ya·čo·rmʸe enkapo·ña ya· . . . mʸe·ra?naña ya·čo·rmʸe enkapo·ña ya·čo·r *He-went he-said Inca our-mother Inca our . . . he-love-yes our-mother Inca our-mother.* 30. {(AxV, V; P, V/O_2)— S, N— [Ij, Ij (P, V/O_2; O, N)]} a·wo? oč pozo·la·r alalala pʸo·taçre?tahte·nen pehkaño·rehša? *He-went he-said-to-her her-husband alalala you-making-make-fun-of-me-in-song your-harlots.* 31. P, V/O_2 e?mo·ñe?te·ñ *He-being-mad-at-her.* 32. {T, T[T, V(AxV, V; P, V)]} ca·pahčʸ pʸe·ta·re·npa? a·wo? awa·ne·neht *Tomorrow it-being-morning he-went going-they.* 33. {S, Pr [AxV, V (V; . . . P, V)]} ñapa? a·wo?č čenk . . . čenkapa? *He go-he-will he-be-last.* 34. (AxV, V; P, V) a·wo? a·we·npa? *he-went he-going.* 35. {(AxV, V; P, V/O_2) S, N} a·wo? ya?na?č počo·yo·r *He-went he-cry-for-her her-children.* 36.

[3] Where a dash occurs it indicates that the material preceding it is part of a discontinuous construction of which the second part occurs following the succeeding dash. The sum of the two parts of the discontinuous construction is in immediate constituent relationship with the remainder of the phrase or sentence.

{(AxV, V; P, V/O_2) S, N} a·wo? ya?na?č počo·yo·r *He-went he-cry-for-her her-children.* 37. {(AxV, V; P, V) [Ij, Ij (Ng, Ng; P, V/O_2)] (D; . . . O, N)} a·wo? ot alalala amač pehya?na?ta·cče añma . . . pʸa·čo·r *He-went he-said alalala not-will you-cry-for-her this . . . your-mother.* 38. (P, V; T, T) we·začca·pahčʸ *She-come-back-will tomorrow.* 39. {T, D (P, V; O, Nm)} alempoñapa? a·wo? amna·rmat *Then-yes he-went five-days.* 40. (P, V; O, N) a·wo? amna·rmat *He-went five-days.* 41. (Ng, Ng; P, V/O_2) amač sehya?na?na?ta·cče *Not-will you-cry-for-her.* 42. S, N poma?pamtañ *Its-three-days-remote.* 43. S, N ma?pamtañ *Three-days-remote.* 44. (T, T; P, V/O_2) ma·čayohčʸo? yerpa? mʸe·ña *Suddenly he-remembering-in-the-morning-her.* 45. (AxV, V; P, V/O_2) a·wo? yerpa? mʸe·ñapa? *He-went he-remembering-inthe-morning-her.* 46. (AxV, V; P, V) a·wo? ot *He-went he-said.* 47. {P, V [$_2$Ij, Ij [$_1$T, T (AxV, Pt; P, V/O_2)$_1$]$_2$]} ot alalala čʸe?pa? o?č nehpenkla?te·nas *He-said alalala now will I-be-playing-the-flute-for-you.* 48. {S, N (AxV, Pt; P, V)} sa·čo·r o?č we·na *Your-mother will she-come.* 49. (AxV, V; P, V) a·wo?ço? penkla?ta?mʸe·n *He-went he-playing-the-flute-in-the-morning.* 50. {(Ng, Ng; P, V) O, N} año? a?pohça·no po?penkoll *Not he-play-well his-flute.* 51. (AxV, V. P, V) a·wo? ya·wa *He-went he-cried.* 52. {Ij, Ij [T, T (P, V; O, N)]} alalala čʸe?ñapa? čenkʸe·za sa·čo·r *Alalala now-yes she-lost-again your-mother.* 53. (Ng, Ng; P, V/O_2) amač yente·re *Not-will we-see-her.* 54. {T, D (AxV, V; P, V)} alempoñapa? a·wo?ço? penkla?t *Then-yes he-went he-played-the-flute.* 55. (Ax, V; P, V) a·wo? ot *He-went he-said.* 56. (Ax, V; P, V) a·wo?ço? ya·wapa? *He-went he-cried.* 57. P, V penkla?tpa? *He-played-the-flute.* 58. (AxV, V; S, D) a·wo?ço? añma *He-went this-one.* 59. (AxV, V; P, V) a·wo? e?ne·za·na? *He-went he-went-to-look.* 60. {S, D (P, V; O, N)} añma tohre?tampsa·n o·k *This-one he-open-all-up whiteman.* 61. (P, V; S, N) alo?ce·nčʸe? počʸahpo·r *There-being-might his-wife.* 62. Ng, Ng; P, V/O_2) ama enče *Not he-see-her.* 63. (Ng, Ng; P, V/O_2) ama enčepa? *Not he-see-her.* 64. (P, V; O, N) to·rampsnoma·n o·k *He-open-all-up-and-left-whiteman.* 65. (P, V; IO, N) P, V/O_2 otnoma·n poče·me·rehša? peyo·ttampe·rča? *He-said-and-left his-children you-close-it-all-up-will.* 66. S, Pr [(AxV, Pt; P, V/O_2) O, N] napa? o?č ne?n·ra? Pʸa·čo·r *I will I-go-look-for-her your-mother.* 67. P, V a·wo?ço? *He-went.* 68. {(AxV, V; P, V) O, N} a·wo? e?ne·za·na? počʸahpo·r *He-went he-went-to-look-for-again his-wife.* 69. P, V/O_2 e?ne·ra? *He-go-to-look-for-her.* 70. (P, V; L, L) a·wo? topo *He-went down-river.* 71. (Ng, Ng; P, V/O_2) ama ente·re *Not he-see-her.* 72. (P, V; O, N) perka·n oñ *He-pile-up water.* 73. {[P, V (At, D; O, N)] L, N} perko·sa·n añ mahpʸe? oño *He-pile-up this rock in-the-water.* 74. {L, D (P, V; L, L)} alohčʸ a?tap eno *There-from he-climb-up high.* 75. {(AxV, V; P, V) S, N} a·wo? wa·ça?ta ahça·n *He-went it-arrived sour-gnat.* 76. {(AxV, V; P, V) S, N} a·wo? wa·ça?ta ahça·n *It-went it-arrived sour-gnat.* 77. {(AxV, V;P,V) [$_2$Ir,D . . . [$_1$Ir, Ir . . . (Ir,Ir;P, V)$_1$]$_2$]} a·wo? oto·s eso?t . . . ezawač . . . ezawač sehta *He-went he-said-there what . . . where-will where-will you-go??* 78. {(AxV, V; P, V) (AxV, Pt; P, V)} a·wo? ot o?č a·wey *He-went he-said will go-we.* 79. {(AxV, Pt; P, V) L, L} o?č ye·mo?te·na? tonaneč ʸ *Will we-go-visiting upriver.* 80. {Ij, Ij (Ir, D; P, V)} alalala ezawa sehpo·sa?te·n *Alalala where you-getting-drunk?* 81. (L, L; P, V) a?yo yehpo·sa?te·n *Far we-getting-drunk.* 82. {P, V/O_2IO_2 [(Ps, N; Ap, N) O, N]} yehco?ta?te·ña·ñ ya·čo·r pala pošošna·t *We-licking-it-for-her our-mother Pala her-strainer.* 83. {Ij, Ij (L, V; P, V/O_2)} alalala a·zo?ce·nwa segahte·zen *Alalala here-she-being-finally you-show-me.* 84. (AxV, V; P, V/O_2) a·wo?ço? ane·reht *He-went took-him-they.* 85. {P, V/O_2 (L, V; S, N)} ane·reht alo?ce·no? počʸahpo·r *Took-him-they there-being-already his-wife.* 86. {T, D (P, V; P, V)} alempoñapa? a·wo? a wo?pa? *Then-yes he-went he-went.* 87. {S, N (Ng, D; S_2, N)} enkpa? año? ma·cze?mño *Inca not very-angry-person.* 88. (T, D; P, V) alempoñapa?

a·wo?pa? *Then-yes he-went.* 89. {P, V [(. . . S, D; Ir, D . . .) L, N]} čahp . . . añma eso?tčʸe? . . . sa?po *He-arrive . . . this-one what-might-it-be . . . at-lake.* 90. {(At, V; S, N) At, V} añe·kmʸe·n sa?p añe·kmʸe·n *It-being-large lake it-being-large.* 91. {(P, V; S, N) L, L} eza·kmañe·n sa?p a?yo *It-stretching-all-out lake far.* 92. {T, D [(AxV, V; P, V) (Ir, V; P, V)]} alempoñapa? a·wo? oto·s ezohčʸe·nwač nepčahtačʸe? *Then-yes he-went he-said-there how-ever-being will I-cross?* 93. {S, N [(P, V; P, V) L, L]} ahča·nñapa? ahno·ma·ča?ta čʸo·mča?twe·zeht yo·mta?n *Sour-gnat-yes flew-left stood-arrived-back-they on-the-other-side.* 94. {(AxV, V; P, V) O, N} a·wo? enta·n arankom *He-went he-saw spider.* 95. {L, D (AxV, Pt; P, V)} a·l o? čete·na *There already he-sticking.* 96. {(AxV, V; P, V/O_2) [P, V/O_2 (Ij, Ij; P, V/O_2)]} a·wo? oč pʸa?pe·čan alalala pʸa?pe·čan *He-went he-said-to-him you-cross-me alalala you-cross-me.* 97. (AxV, V; P, V) a·wo? ot *He-went he-said.* 98. {(AxV, V; P, V) (P, V/O_2; DA, N)} a·wo?čo? mo·zehča? nehččapʸča? enkaya *He-went he-sang I-carry-you-will Inca.* 99. {(P, Pt; L, D) S, N} are?t a·lo koskoya *Isn't there Cuzco?* 100. (P, V; S, N) ya·we·na enkaya *He-crying Inca.* 101. (AxV, V; P, V) a·wo?čo? ohmačme?tahtnoma *He-went he-made-jump.* 102. {(At, Pt; P, V) (L, D; L, N)} e?ñe čahpaca ala·me?tec to·pñahso *Completely he-arrive near to-shore.* 103. (AxV, V; P, V) a·wo?čo? ohmača *He-went he-jumped.* 104. {(AxV, V; P, V) O, N} a·wo? ečlečwanmoñ pota·čʸolehša? *He-went he-broke-on-him his-little-hands.* 105. (AxV, V— L, D— P, V) a·wo?čo? a·la ma?nahta *He-went there he-was-lost-out-of-sight.* 106. P, V/O_2 ma? nahta?če·pa? *Let-him-be-lost-out-of-sight.* 107. {T, D [(AxV, V; P, V) L, D]} alempoñapa? a·wo? čahp a·l *Then-yes he-went he-arrived there.* 108. (P, V; L, D) čahp alapa? *He-arrive there.* 109. Ir, D eso?tčʸe? *What-now?* 110. {(AxV, V; P, V) (P, V; P, V)} a·wo?čo? a·wo? a·wo? a·wo?čʸe? *He-went he-went he-went he-went-now.* 111. (P, V; O, N) enta·nña počʸahpo·r *He-see-yes his wife.* 112. {(AxV, V; P, V) L, L} a·wo? čahp yo·mta?n *He-went he-arrived on-the-other-side.* 113. (AxV, V; P, V) a·wo?čo? wahpa *She-went she-came.* 114. {(AxV, V; P, V) S, N} a·wo?čo? o·nña počʸahpo·r *She-went she-came-yes his-wife.* 115. {[(AxV, V; P, V) L, D] [(. . . S, D; Ir, D . . .) (DA, N; P, V)]} a·wo?čo? ot a·la . . . añma eso?tčʸe? . . . enka pewahpa *She-went she-said there . . . this-one what-might-it-be . . . Inca you-come.* 116. {(AxV, Pt; P, V) (Ij, Ij; L, V)} o? newahpa alalala a·zo?ce·nepʸwa *Already I-come alalala here-being-you-finally.* 117. (L, V; DA, N) a·zo?ce·nen enka *Here-being-I Inca.* 118. (T, T; P, V) čʸe?ña pe·cotapesya *Now you-just-be-humble.* 119. {S, N [$_2$(. . . S, D; Ir, D . . .) [$_1$L, N (L, D; P, $V)_1]_2$]} apapa? . . . añma eso?tčʸe? . . . pa?paklo a·l parcohte·n *Father . . . this-one what-might-it-be . . . in-his-house there he-being-making-powerful.* 120. P, V pehkonkorpo·sa *You-kneel-there.* 121. {L, D [P, V/O_2— S, N— (At, D— P, V— O, N)]} alohčʸñapa? pertnapapʸča? apa alpo·n pehpehča?tahče?čʸ ya?zo·mñahčʸe·r *There-from-yes he-forgive-you-will father as-many-as you-used-to-cause-to-cut-off our-dead-ones.* 122. (R, R; P, V) a·tečʸča? pehca?to·sa *Thus-will you-pay-there.* 123. {C, Pt [$_3$S, N [$_1$ (At, Pt; At, At) P, $V_1]_2$]} pe·če? apapa? e?ñe ma·meša? acze?mʸe·napa? *But father completely a-little he-being-mad.* 124. (AxV, Pt— L, D— P, V/O_2) o?č a·la pertne·zepʸ *Will there he-forgive-again-you.* 125. (P, V; O, N) pena·mʸez pertne·ñec *You-ask-again forgiveness.* 126. (AxV, Pt— L, D— P, V/O_2) o?č a·l pertne·zep *Will there he-forgive-you-again.* 127. (Ng, Ng— At, V— P, V) amač ezohčʸe·na pe?ño·ra·cto *Not-will it-by-any-means-being you-talk-bad.* 128. {(AxV, V; P, V)— S, N— [$_3$Ij, Ij [$_2$[$_1$(R, R; P, V) S, N_1] (C, Pt; S, $Pr)_2]_3$]} a·wo? ot enka alalala a·tečʸ waña pepa·pa·r ñehza? na *He-went he-said Inca alalala thus ends your-father like I.* 129. {(AxV, V; P, V) (Ng, Ng— Da, N; R, R— P, V)} a·wo? ot amač enka a·tečʸa? pʸo·ta·cto *She-went she-said not-will Inca thus-will you-talk-bad.* 130. {[At, Pt; At, At)

P, V] At, At} e?ñeč ko·we·n peño·s ko·we·n *Completely good you-talk-there good.* 131. {T, At (AxV, Pt; P, V/O_2)} ma·meša?pa? o?č pertnapap^y *In-a-little-while will he-forgive-when-come-you.* 132. {S, N [$_2$[$_1$(At, Pt; At, At) P, V $_1$] At, At $_2$]} apapa? e?ñe coñe?-č^{y}ča? acze?m^{y}e·na coñe?č^y *Father completely a-little-will he-being-mad-a-little.* 133. {T, D (AxV, Pt; P, V)} alempoñapa? o?č ma·ça?-nom *Then-yes will he-get-over-it.* 134. {S, Pr (AxV, V; P, V/O_2)} ñañapa? a·wo?ço? wa·po·re?č *He-yes he-went he-threw-out-it.* 135. (P, V; P, V) wahpač^{y}e? wahpač^{y}e? *He-come-now he-come-now.* 136. P, V kočy·o·s *He* follow-there. 137. {[$_1$Ij, Ij (R, R; P, V)$_1$] [$_3$Ij, Ij [$_2$(Ng, Ng; P, V) S, N $_2$]$_3$]} alalala atč^{y}awa p^{y}o·te·n alalala año? mayo·rohçe·no pepa·pa·r *Alalala thus you-saying alalala not he-very-powerful-being your-father.* 138. {(P, Pt; R, R) (C, Pt; S, P)} are·pa?t a·tč^{y}e ñehza?m na *Shouldn't-he-be thus like I?* 139. (Ng, Ng— Da, N; AxV, Pt— P, V) amač enka ça p^{y}o·t·cto *Not-will Inca be you-talk-bad.* 140. {(At, At; P, V) O, N} ko·we·nča? pema?yohčo·sya apa *Good-will you-just-pray-there father.* 141. {T, D [(AxV, V; P, V) L, D]} alempoñapa? a·wo?ço? çahp ala·me?-tecpa? *Then-yes, he-went he-arrived near.* 142. (AxV, V; P, V/O_2) a·wo?ço? otap^y *He-went he-said-to-him-when-he-came.* 143. {(AxV, V; P, V/O_2) O, N} a·wo? womča?-tap^y pa?go? *He-went he-greeted-him-when-he-came his-father-in-law.* 144. {P, V/O_2 [O, N (N; . . . Ap, N)]} ahpap^y xeredo·nañ xere . . . xerespe·z *He - give - to - him - when - he - come chief's-seat . . . chief's-seat.* 145. (L, D; P, V) a·lča? p^{y}ano·zo·s *There-will you-sit-there.* 146. (AxV, V; P, V) a·wo? wa·po·re?toñ *He-went he-threw-out-for-him.* 147. {(AxV, V; P, V) (AxV, V; P, V)} a·wo? ohma·ča a·wo? ohma·ča *He-went he-jumped he-went he-jumped.* 148. (At, Pt; P, V) çoʔč a?torpe?ćwe·pa? *Truly-will let-it-be-broken-down.* 149. (P, Pt— AxV, Pt— P, V) are·pa?t o?č a?torpe?če *Shouldn't-it-be will it-be-broken-down?* 150. {L, D [$_2$[$_1$(AxV, Pt; P, V) O, N_1] L, N_2]} o? cetacto·sa pok^{y}e?na·rč^{y}e? xerespe·zo *There already he-bumped-bad-there his-buttocks on-the-chief's-seat.* 151. {T, D (P, V; S, N)} alempo tanta pa?go? *Then he-get-up his-father-in-law.* 152. P, V/O_2 če?ça·me?č *He-talk-a-little-loudly-to-him.* 153. {T, T (P, V L, D)} č^{y}e?pa? pewahpa a·z *Now you-come here.* 154. {(L, D; P, V) (At, D— P, V— O, N)} a·zča? pehca?to·sa alpo·n pekeščone?č^y na?zo·mñahč^{y}e·r *Here-will you-pay-here as-many-as you-used-to-shed-blood-on-me my-dead-ones.* 155. {T, T (L, D; P, V/O_2)} č^{y}e?pa? a·zča? penč *Now here-will you-see-it.* 156. {P, V [(R, R; At, D) P, V]} p^{y}o·zampso·s ñeñč^y alpo·n pehpehča?-tahte?č^y *You-grab-all-out which as-many-as you-used-to-cause-to-cut-off.* 157. {T, T (Da, N; P, V)} č^{y}e? enka pewahpa *Now Inca you-come.* 158. (Ng, Ng— O, N— P, V) ama p^{y}a?če·ñe·r pehpehča?tahte?č^{y}e *Not your-people you-cause-to-cut-off.* 159. (Ng, Ng; S, N) ama po?čñohč^{y}e *Not from-their-sin.* 160. {T, T (L, D; P, V)} č^{y}e?pa? a·zča? pehca?to·sa *Now here-will you-pay-here.* 161. (Ng, Ng; P, V) amač petante·zo *Not-will you-get-up-again.* 162. (Ng, Ng; T, D) ama?t ezpo·naña *Is-it-not forever?* 163. (Ng, Ng; T, T) ama?t awahč^{y}a *Is-it-not from-past?* 164. (Ng, Ng; P, V) amač pehca?to·sa *Not-will you-pay-here.* 165. (Ng, Ng; P, V) amač petante·zo *Not-will you-get-up-again.* 166. {T, T (P, V/O_2; L, D)} č^{y}e?pa? nehnap^y a·z *Now I-leave-you here.* 167. {(AxV, V; P, V)—S, N— (Ij, Ij; P, V)} ɛ·wo? otña enk alalala nehca?twačpa? *He went he-said Inca alalala I-pay-all-will.* 168. (P, V— S, N— T, D) tante·zač enk ezpo·nañapa? *He-get-up-again-will Inca forever.* 169. (P, V; S, N) tante·zač enk *He-get-up-again-will Inca.* 170. (Ng, Ng; T, D) ama?t ezpo·nañapa? *Is-it-not forever?* 171. {(Ng, Ng; P, V) S, N} amač tante·zo enk *Not-will he-get-up-again Inca.* 172. (P, V/O_2; O, N) p^{y}o·zapre?to·sen nehpa·ceñ *You-grab-there-me my-earth.* 173. {L, D [$_3$(L, D; P, V) [$_2$R, R [$_1$P, V (At, D; O, N)$_1$]$_2$]$_3$]} alohč^{y}ñapa? a·lča? p^{y}o·zapre·ç ñeñč^y pehpehča?tahte?č^y alpo·n ače·ñ *There-from-yes there-will you-grab-roots which you-used-to-cause-to-be-cut-off as-many people.* 174. {(R, R; P, V/O_2) S, N} a·teč^y očña yahtyo·s *Thus he-say-to-him-yes our-god.* 175. (T, D;

P, V) alempoñapa? a?mče·čehtčʸe? *Then-yes he-was-stopped-from-talking.* 176. P, V a·wo?-čʸe? *He-went-now.* 177. (P, V; S, N) awye·-sčʸe? pʸe·reč *They-went-out-all-ways-now his-roots.* 178. {(L, L; P, V) [(P, V; C, Pt) S, N]} a?yo ere·ča?tye·s otta ñehza?za?čʸe? cahč *Far he-root-in-all-directions it-do like tree.* 179. {T, D (Ng, Ng; P, V)} alempoñapa? ama tante·zo *Then-yes not he-get-up-again.* 180. P, V če?pta re?č *He-punish-him.* 181. {S, N (P, V; P, V)} enkñapa? ya·wa ya·wa *Inca-yes he-cry he-cry.* 182. {T, T (Ir, V; P, V)} čʸe? ezohčʸe·nowačʸe? yetante·za *Now how-being-ever-might we-get-up-again?* 183. {[AxV, Pt; P, V) L, N] S, N} o? čop yekʸe?na·rohčʸ yeˑreč *Already it-grow from-our-buttocks our-root.* 184. (T, D; L, D) alempoñapa?čo? a·lačo?ña *Then-yes there-yes.* 185. {P, V [$_2$O, N [$_1$Ap, N (At, D; Ap, N)$_1$]$_2$]} no·ñehtčʸe? paryakonč mʸo·z añma we·raweš *They-put-on-him-now whirlwind wind this strong-wind.* 186. {L, D [(Ng, Ng; P, V) S, N]} alohčʸñapa? amač čopʸe·zo cahčpa? *There-from not-will it-grow-again tree.* 187. (Ng, Ng— L, D— P, V) amač alohčʸ tante·zo *Not-will there-from he-get-up-again.* 188. {[T, V (P, V/O$_2$; O, N] (At, D— P, V— O, N)} ezpo·nañohwe·nča? pʸo·zapre?ten nehpa·ceñ alpo·n pekeščonaye?čʸ ya?zo·-mñahčʸe·r *Forever-it-being-will you-grab-me my-earth as-many-as you-used-to-shed-blood-on-us our-dead-ones.* 189. (T, Pt; P, V) ehpaye? pʸa?cezpʸone?čʸ *Day-after-day you-used-to-hurt-on-me.* 190. {(O, Pr; Ap, N) P, V} ñamʸa nehseñ pehčohta?to·ne?čʸ *Her-too my-daughter you-used-to-beat-on-me.* 191. P, V pehčna?tye·so·ne?čʸ *You-used-to-be jealous-on-me-in-various-ways.* 192. {T, T (L, D; P, V)} čʸe?pa? a·lča? pehca?twe·na *Now there-will you-pay-all.* 193. (Ng, Ng; T, D) ama?t ezpo·naña *Is-it-not-forever?* 194. (Ng, Ng; P, V) amač petante·zo *Not-will you-get-up-again.* 195. Ir, D esčʸe?m *What-now?* 196. P, V na?pʸe?m *I-finish.* 197. waño?m *It-end.*

2. 1. Inca, this one, had taken god's daughter, our god. 2. He was very angry. 3. He was very angry. 4. Inca beat our mother. 5. He was jealous of our mother, Pala. 6. Our mother, Pala, this one he took. 7. He is going to beat her very much. 8. They drink. 9. They make merry. 10. Then he follows her. 11. Then he beats her. 12. He beats her. 13. She goes inside. 14. He doesn't like it. 15. He said, "I'm going to follow her." 16. Chief Mopool said, "He's not going to beat you. 17. Don't you listen to him. 18. Tomorrow morning I'm going to take you. 19. I'm going to leave you at your mountain namesake. 20. From there you will go to where your father is. 21. He is very mad at you. 22. Very much you cause the heads to be cut off of our dead ones." 23. Thus he said to her. 24. Then all night they kept going on singing. 25. Then they were saying. 26. They sang. 27. They said. 28. They made fun of him in song. 29. They said, (Song) "Inca, our mother, Inca, our . . . , he loves, our mother, Inca, our mother." 30. Her husband said to her, "Alalala, you are making your harlots make fun of me in song." 31. He was mad at her. 32. The next morning they left. 33. They will go and be lost out of sight. 34. They kept on going. 35. Her children cried for her. 36. Her children cried for her. 37. He said, "Alalala, don't cry for your mother. 38. She will come back tomorrow." 39. Then they went five days. 40. They went five days. 41. "Don't cry for her." 42. Three days passed. 43. Three days passed. 44. Suddenly in the morning he remembered her. 45. In the morning he remembered her. 46. He said. 47. He said, "Alalala, now I will play the flute for you. 48. Your mother will come." 49. He played the flute in the morning. 50. He didn't play his flute well. 51. He cried. 52. "Alalala, now your mother is lost again. 53. We won't see her." 54. Then he played the flute. 55. He said. 56. Then he cried. 57. He played the flute. 58. This one went. 59. He went to look for her. 60. He opened all up the place where the whitemen were. 61. His wife might be there. 62. He didn't see her. 63. He didn't see her. 64 He opened all up the place of the whitemen and

then left. 65. He said to his children as he left, "You close it all up. 66. I will go to look for your mother." 67. He went. 68. He went to look for his wife. 69. He went to look for her. 70. He went down-river. 71. He didn't see her. 72. He piled up water. 73. He piled up this rock in the water. 74. Then he climbed up high. 75. The sour gnats arrived. 76. The sour gnats arrived. 77. He said, "Where are you going?" 78. They said, "We are going to leave. 79. We are going to go visiting upriver." 80. "Alalala, where you get drunk?" 81. "Far over there we get drunk. 82. We are licking our mother Pala's strainer for her." 83. "Alalala, you show me where she finally is." 84. They took him. 85. They took him to where his wife was. 86. Then he went and went. 87. Inca was a very, very angry person. 88. Then he went. 89. He arrived at this lake. 90. It was a large lake, very large. 91. The lake stretched out far. 92. Then he said there, "How will I ever cross?" 93. Then the sour gnats left flying and arrived and stood over on the other side. 94. He saw a spider. 95. It was sticking there. 96. He said to it, "You take me across, alalala, you take me across." 97. It said. 98. It sang, (Song) "I will carry you, Inca. 99. Isn't it Cuzco over there? 100. Inca is crying." 101. Then it jumped him across. 102. He arrived all the way near to the shore. 103. He jumped off. 104. He broke all the spiders little hands. 105. It went then out of sight. 106. Let it be lost out of sight. 107. Then he arrived there. 108. He arrived there. 109. What now? 110. He went and went and went. 111. He saw his wife. 112. He arrived on the other side. 113. She came then. 114. His wife came. 115. She said there, "Inca, you've come." 116. "I have come, alalala, here where you finally are." 117. "Here I am, Inca. 118. Now you just be humble. 119. Father in his house there is very powerful. 120. You kneel there. 121. From there father will forgive you for as many heads as you used to cause to be cut off of our dead ones. 122. Thus you will pay there. 123. But father is just a little mad at you. 124. He will forgive you there. 125. You ask for forgiveness. 126. He will forgive you there. 127. Don't by any means talk bad." 128. Inca said, "Alalala, your father comes to an end just as I do." 129. She said, "Don't talk so, Inca. 130. Talk all the way good. 131. When you come, in a little while he will forgive you. 132. Father is just a little mad, just a little. 133. Then he will get over it." 134. He (father-in-law) threw it out (the chief's seat). 135. He comes now, he comes. 136. He follows there. 137. "Alalala, so you're saying, alalala, your father is very powerful. 138. Shouldn't he be just as I am?" 139. "Don't, Inca, be talking so. 140. You just pray right there to father." 141. Then he came up near. 142. He (Inca) said to him (father-in-law) when he came. 143. He (Inca) greeted him when he came. 144. He (father-in-law) gave him when he came the chief's seat. 145. "You will sit there." 146. He threw it out for him. 147. He (Inca) jumped and jumped on it. 148. Let it be all broken down. 149. Shouldn't it be all broken? 150. He bumped hard his buttocks on the chief's seat. 151. Then his father-in-law got up. 152. He talked a little loudly to him (Inca). 153. "Now you come here. 154. Here you will pay for the number of my dead ones whose blood you used to shed. 155. Now here you will see it. 156. You will grab all out as many times as you used to cut off heads. 157. Now you come, Inca. 158. They weren't your people whose heads you caused to be cut off. 159. It wasn't from their own sins. 160. Now here you will pay. 161. You will not get up again. 162. Even forever. 163. Even from the past. 164. You will not pay back. 165. You will not get up again. 166. Now I leave you here." 167. Inca said, "Alalala, I will pay all. 168. Inca will get up again forever, 169. Inca will get up again. 170. Even forever." 171. "Inca will not get up again. 172. You will be grabbing out on my earth. 173. From there your roots will grab out as many times as you used to cause the heads to be cut off of people." 174. Thus our god said to him. 175. Then he was stopped from talking. 176. He

went now. 177. His roots went out in all directions. 178. He rooted far out in all directions like trees do. 179. Then he did not get up again. 180. He punished him. 181. Inca cried and cried. 182. "Now how will I ever get up again? 183. Already roots grow from our buttocks." 184. Then truly, it was that way. 185. They put on him a whirlwind, a strong wind. 186. From there the tree will not grow again. 187. He will not get up then. 188. "Forever you will be grabbing on my earth as many times as you used to shed the blood of our dead ones. 189. Day after day you used to hurt them. 190. Her, too, my daughter you used to beat. 191. You used to be jealous in various ways. 192. Now here you will pay for it all. 193. Even forever. 194. You will not get up again." 195. What now? 196. I've finished. 197. It's ended.

CASHIBO II:[1] GRAMMEMIC ANALYSIS OF TRANSITIVE AND INTRANSITIVE VERB PATTERNS

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[1] For Cashibo 1: Phonemes, see IJAL 16.198–202 (1950). The material for this paper, as for the earlier one, pertains to the dialect of Cashibo spoken along the Shambuyacu River, a tributary of the Aguaitía River of the Amazon Basin in Perú. The Cashibo language, as Caxibo, is classified as Central Panoan by Norman A. McQuown, Indigenous Languages of Latin America, AA 57.501–570, pp. 520 and 512 (1955).

1. This presentation of material utilizes the scheme of grammemic analysis set forth by Pike in his *Language in Relation to a Unified Theory of the Structure of Human Behavior*[2], and combines it with the decadecentury numbering system developed by Voegelin for the labelling of classes and subclasses of morphemes[3].

As to content, the paper discusses transitive verbs (VT) and intransitive verbs (VI) in **2** and **3**, and brings them together as a hyperclass of words in **4**. The uttereme formulas given are necessary and sufficient to demonstrate the fact that a differential exists (a) between major word classes—verb, noun, and particle classes appear in the formulas—and (b) between different classes of verb words; the uttereme formulas also allow for the identification of the general function of some of the major word classes and the general function of the verb classes. They are not intended to treat syntax as a whole. The greater part of the paper deals with the internal structure of the verb forms.

2. Transitive verbs are discussed in this section from two points of view: (1) the classes which they constitute in terms of their membership, and (2) the internal structure of their membership. We turn first to the classes which they constitute (**2.1**), following which their internal structure will be considered (**2.2**).

2.1. VT[4] symbolizes a hyperclass[5] of principal and subordinate transitive verbs. The two classes of transitive verbs are represented in an expanded form of Uttereme No. 1. This uttereme has the meaning of action in first, second, or third person performed toward a goal. In minimum form Uttereme No. 1 is symbolized

$$++\ \text{PersModal}^{P_1} + \text{TPred}_p(+\ \text{TBase}^{V_eT} \\ ++\ \text{PersMargin}_p^{300A})^6.$$

The details of the formula will be made clear as the paper proceeds. It is sufficient to note here that the uttereme consists of two obligatory complex units, the first being a modal word composed of a particle plus person suffix, and the second a principal transitive verb composed of a transitive

[2] Part I, Preliminary Edition, Summer Institute of Linguistics, Glendale, California, 1954. See also papers by Hart and Meyers in this issue of IJAL. I am indebted to Pike for many helpful suggestions during preparation of this paper.

[3] As seen in Wonderly 1951–52, and Garvin 1949, 1951, and in several other IJAL papers, as Bergsland, 1951. Note reference to its contribution in Pike, op. cit., p. 149b.

[4] VT indicates Transitive Verb. A key to the less obvious abbreviations includes the following:

Adj	adjunct
Ag	allogram
Conj	conjunct
DS	having a subject different from that of the principal verb
I	intransitive
i	correlation between a subordinate verb and an intransitive principal verb
intr	intransitivizing
N	noun, without regard to classes into which they fall
Neu, n	neutral
P	particle root (which may also be a word)
P_1	particle root plus person-marking suffix
p (subscript)	principal
s (subscript)	subordinate
SS	having the same subject as the principal verb
T	transitive
t	correlation between a subordinate verb and a transitive principal verb
tr	transitivizing
VI	Intransitive Verb

[5] The term hyper- indicates a higher level in the hierarchy. Hyperclass indicates that the classes composing the hyperclass fill different grammemic spots; hypermorpheme indicates two or more morphemes in a unitary sequence or fused unit; hypergrammeme indicates two or more obligatory grammemes in a unitary sequence or fused unit.

[6] In all formulas plus signs indicate obligatory items, ± in formulas indicate optional items. Double symbols such as ++ or ±± indicate a hypergrammeme in which the two obligatory parts are not shown in the formula; ++ indicates an obligatory hypergrammemic unit, and ±± indicates that the hypergrammemic unit is optional. ~ indicates that morpheme alternants are phonologically conditioned, ∞ that they are morphologically conditioned, / that they are free variants.

(indicated by T before Base) base plus a principal (indicated by subscript p) person-marking margin. The minimum form of Uttereme No. 1 is illustrated in the following: kaa ʔapáakïšį́ *he or they planted long ago* (< ka- *mode*, -a *third person*—the morphemes ka- and -a may be fused to occur as ka; ʔa- *to do, make*, -pa- *down*, -akï- *long ago*, -šį́ *third person*). Here ʔapáakïšį́ is a principal transitive verb composed of two major obligatory parts, the base ʔapá- and the margin -akïšį́.

One possible expanded form of Uttereme No. 1 (there are others also) is symbolized in Formula 1. It includes, in the second pair of braces, the minimum form of the uttereme, plus an optional direct object juxtaposed to the principal transitive verb; then, outside of this clause, there is an expansion consisting of a further clause (within the first pair of braces) which has its obligatory verb and its optional object. The verb of the clausal expansion is a subordinate transitive verb whose formula obligatorily includes a transitive base plus a margin which is subordinating (indicated by subscript s) and is in agreement with a transitive principal verb (indicated by the lower-case t's and the dotted line). The expansion of Uttereme No. 1 is illustrated in the following: nɔɔ činápatą́kïšǫ kaa ñoo ʔapáakïšį́ *having vanquished the enemy, he or they planted things long ago* (< nɔɔ *enemy*; činą́- *to throw out*, -pa- *down*, -tąkï- *completive*, -šǫ *appositive correlated with a principal transitive verb*; ka- *mode*, -a *third person*, ñoo *things*; ʔa- *to do, make*, -pa- *down*; -akï- *long ago*, -šį́ *third person*). Here činápatą́kïšǫ́ is a subordinate transitive verb composed of two obligatory parts, the base činápa- and the subordinate-verb margin -tąkïšǫ́.

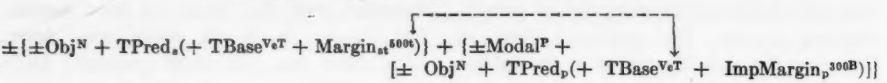
Formula 1: A Typical Expansion of Uttereme No. 1

$$\pm\{\pm\text{Obj}^{N} + \text{TPred}_{s}(+\text{TBase}^{VcT} + \text{Margin}_{st}{}^{500t})\}+\{++\text{PersModal}^{P_1} + [\pm\text{Obj}^{N} + \text{TPred}_{p}(+\text{TBase}^{VcT} ++ \text{PersMargin}_{p}{}^{300A})]\}$$

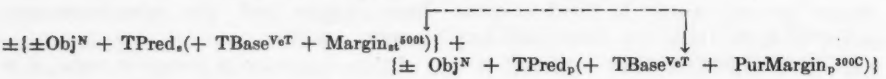
In the discussion of transitive verbs, it is necessary to introduce two further uttereme types, Uttereme No. 2 and Uttereme No. 3. One possible expanded form of Uttereme No. 2 is shown in Formula 2. Its minimum form consists of the obligatory predicate word unit within the second pair of braces. Uttereme No. 2 has the meaning of imperative, the action being capable of exertion toward a goal. The minimum form of the uttereme consists of a principal verb containing a transitive base plus a principal imperative margin. The modal, though included more often than not, may be omitted and hence is indicated as optional; it includes panded form consists of the obligatory predicate word unit within the second pair of braces. As to meaning, Uttereme No. 3 is purposive in future time, the action being capable of exertion toward a goal. The minimum form of the uttereme, the obligatory principal verb, is composed of a transitive base plus the purposive margin. An object no person-indicating suffix—these latter two items are crucial differentiating criteria which cause this uttereme to be treated separately from Uttereme No. 1. An object may optionally be added to this clause. The subordinate verb composed of a transitive base plus a subordinate margin forms a further expanding unit, with its optional object. The expansion of Uttereme No. 2 is illustrated in the following: nami pinošǫ́ ka kirika ʔámít *teach before eating meat* (< nami

[7] For class 500t see **2.2.2.2.1**, and for class 300A see **2.2.2.1.1.** The predicate sequences including Base plus Margin in this and in further uttereme formulas (Formulas 1 to 8, 1a and 4a) are single words on a morphological level; single items outside of the predicates are also words. Beyond these formulas, reference to the terms TPred_{s} and TPred_{p} will be delayed until syntax as such is under discussion.

Formula 2: A Typical Expansion of Uttereme No. 2



Formula 3: A Typical Expansion of Uttereme No. 3



meat; pi- *to eat*, -no- *purposive*, -ʂǫ *appositive correlated with a principal transitive verb*; ka *mode*; kirika *book, paper*; ʔa- *to do, make*, -mi- *causative*, ´t *imperative*). Here pinoʂǫ is the subordinate verb unit, and ʔámít the principal verb unit.

Uttereme No. 3 is shown in one possible expanded form in Formula 3; the unexmay optionally be added to this clause. A further expanding unit contains a subordinate verb composed of a transitive base plus a subordinate margin. The expanded uttereme is illustrated in the following: kirika ʔatąkïʂǫ nami pinǫ *having studied, (I'm) going to eat* (< kirika *book, paper*; ʔa- *to do, make*, -tąkï- *completive*, -ʂǫ *appositive correlated with a principal transitive verb*; nami *meat*; pi- *to eat*, -nǫ *purposive*). Here ʔatąkïʂǫ is the subordinate verb unit, and pinǫ the principal verb unit.

The expanded form of Uttereme No. 1, as in Formula 1, will be considered in detail first. In it, two types of verbs appear; one type manifests the principal transitive verb hypergrammeme, and the other manifests the subordinate transitive verb hypergrammeme which is nuclear within a unit which is in turn peripheral, as seen in the formula above, to the hypergrammeme {++ Modal^{P_1} + (+ TBase^{VeT} ++ Pers-Margin$_p^{300A}$)}, which hypergrammeme comprises the minimum form of Uttereme No. 1. The principal verb type constitutes a class of hypermorphemes. Similarly, the principal verb types of Uttereme No. 2 constitutes a further class of principal verb hypermorphemes, and the principal verb type of Uttereme No. 3 constitutes a still further class. These three classes of hypermorphemes constitute a hyperclass of principal transitive verb hypermorphemes. The subordinate verb types (of which there are two, according to whether the principal verb is transitive or intransitive, and which will be described fully in **2.2.2.2**) constitute a hyperclass of subordinate transitive verb hypermorphemes. Together the hyperclasses constitute a higher layered hyperclass VT of transitive verb words. Principal and subordinate transitive verbs have certain characteristics in common: each has the meaning of predicate in the unit in which it occurs, and also the meaning of action directed toward a goal; each is comprised of Base plus Margin; the bases of both principal and subordinate verbs are comprised of the same class of morphemes and hypermorphemes (for specific TBase structure see **2.2.1**); the principal and subordinate verbs differ in their margins (cf. **2.2.2**). In contrast to the transitive verb hyperclass, intransitive verbs (VI) have the meaning of state or action incapable of a goal; the bases of intransitive verbs are constituted of a class of morphemes and hypermorphemes (cf. **3.2.1**) different from the class constituting the bases of transitive verbs (though the margins of both transitive and intransitive verbs are comprised of the same classes of morphemes and hypermorphemes).

2.2. Transitive verb hypermorphemes contain Base and Margin (cf. Formulas 1, 2, 3). The margins will be discussed in **2.2.2.** We are first concerned with the bases, which are common to principal verb hypermorphemes

and subordinate verb hypermorphemes of Utteremes Nos. 1, 2, and 3. The grammeme $TBase^{V_cT}$ has, like the V_cT class (of classes) of morphemes and hypermorphemes which manifests it, the meaning of action capable of exertion toward a goal. It combines with the $Margin_{st}^{500t}$ grammeme or with the $Margin_{si}^{500i}$ grammeme in hypergrammemes whose manifestations are subordinate transitive verbs, and with the $PersMargin_p^{300A}$ grammeme, the $ImpMargin_p^{300B}$ grammeme, or the $PurMargin_p^{300C}$ grammeme in hypergrammemes whose manifestations are principal transitive verbs.

2.2.1. Transitive Base is composed of Core and optional or—in certain instances—obligatory suffixes. The Core of Transitive Base may be transitive, or it may be intransitive followed by a transitivizing suffix. Transitive Core will first be described in **2.2.1.1**, then Intransitive Core will be mentioned briefly in **2.2.1.2**; the suffixes to be included in the base will be described in **2.2.1.3.**

2.2.1.1. Transitive Core of Transitive Base is shown in Chart 1 as to position in the principal transitive verb of Uttereme No. 1. The content of Transitive Core is also presented in Chart 1 and its footnote extension, the units between the diagonal lines indicating the types of morphemes and hypermorphemes constituting the V_bT class (of classes, of which seven are presented in the chart and its footnote extension, and two further ones are presented later in the text) manifests membership. (Chart 1 and also the other charts and the formulas are intended to facilitate following the unfolding of the structural hierarchies in the material; the reader is not expected to follow them completely at the time they are presented, but to refer to those points in them which are relevant to the paragraphs as they are developed.) The V_bT class (of classes, of which seven are presented in the chart and its footnote extension, and two further ones are presented later in the text) manifests

Chart 1

Principal Person Transitive Verb (with Transitive Core)

+	$TBase^{V_cT}$					++	$PersMargin_p^{300A}$
+	$+TCore^{V_bT}$ /	$TCore^{V_bT}$ /	$TCore^{V_bT}$ /	... $\pm Suf...^{x...}$	$\pm Suf...^{y...}$		
+	$+TRoot^{V_aT}$ /	$(+Pre^{90} + TRoot_1^{V_aT_1})$ /	$(+NeuRoot_1^{V_an_1} + tr^{112})$ / ...	$^{9}\pm Rep^{x220}$	$\pm Caus^{y160}$	$+(+ Tense^{310-330} +$	$Pers^{390})$
+	ʔon-ɬ /	(+ ma- + -ño-) /	(+ ba- + -ka-) / ...	$\pm$ -tɬḱ-	$\pm$ -mi-	$+(+$ -a- +	-s̈ɬ)
	to know	/(*head to clothe*)	/(*to rise transitivizer)* / ...	*again*	*causative*	*immediate past*	*third person*

[8] Formula $Suf...^{x\cdots}$ represents a class of several grammemes, not all of which occur in the same spot, but which may occur in a sequence of associated spots (cf. **2.2.1.3**). $Suf...^{y\cdots}$ is another such class of grammemes.

[9] Chart 1 could be extended to include remaining hypermorpheme classes of V_bT; the following would be inserted after the three types of Core already given:

$TCore^{V_bT}$ /	$TCore^{V_bT}$ /	$TCore^{V_bT}$ /	$TCore^{V_bT}$
$(\pm TRoot^{V_aT} + TRoot^{V_aT})^*$ /	$(+Adj^N + Conj^{2-/\cdots a-})$ /	$(+Pre^{30} + NeuRoot_2^{V_an_2} + tr^{112})$ /	$(Pre^{60}TRoot^{V_aT})^*$
(± ʔikó- + boɬ-) /	(+sipo+ ʔa-)/	(+ ta- + -ɬs- + -ka-)/	(kʷī- kapǫ́-)
(*to hug to carry)* /	*(jail to do, make*)/	*(foot to singe tran-siti-vizer*)/	*(border to roll)*
(*to carry hugging*) /	*(to put in jail*)/	*(to singe the foot of*)/	*(to hem*)

* A further similar expansion will be added in the text below.

the $TCore^{V_bT}$ grammeme. The examples given in Chart 1 are as follows: ʔonátïkɨmiašɨ *he or they caused (someone) to understand again*; máñotïkɨmiašɨ *he or they caused (someone) to clothe the head again*; bákatïkɨmiašɨ *he or they caused (someone) to rise up again.*

The $TCore^{V_bT}$ grammeme is a constituent of most of the transitive bases. (The $ICore^{V_bT}$ grammeme may be a constituent of Transitive Base if followed by a transitivizing suffix grammeme, **2.2.1.2.**) In addition to its occurrence in Transitive Base, the $TCore^{V_bT}$ grammeme may also combine with an intransitivizing suffix grammeme to form a hypergrammeme whose manifestation is an intransitive base hypermorpheme (cf. **3.2.1.2**). It may also occur in certain nominalized forms in the noun category[10]. The $TCore^{V_bT}$ grammeme has the meaning of action directed toward a goal. It is manifested by the ^{V_bT} class of morphemes and hypermorphemes, which is described in the following paragraphs.

2.2.1.1.1. The morpheme classes included in V_bT are now to be described. They have as one of their characteristics their distribution in various grammemes within the morphemically complex or simple core, which grammemes will be described in **2.2.1.1.2.** The relationship of these morpheme classes, then, as included in the hypermorpheme classes of V_bT is not given in this section, but appears in detail in **2.2.1.1.2**, where it will be evident as a part of the distribution mode of the grammemes which the morpheme classes manifest. Chart 1, however, with its extension in Fn9, will enable the reader to locate the morpheme classes in the hypermorphemes of the core.

[10] Though this section is concerned primarily with the $TCore^{V_bT}$ grammeme as it is present in transitive verb bases, it is expedient to indicate total distribution of the grammeme in its initial description, and refer to it later as needed by cross-reference. This principle will be observed for descriptions of grammemes throughout the paper.

The membership of the morpheme classes is given in detail only here.

Morpheme Class V_aT (see Chart 1) comprise a list of transitive verb roots which constitute a class of morphemes included in V_bT, and which also manifest the grammeme $TRoot^{V_aT}$ which occurs in expanded grammemes whose manifestations form classes of hypermorphemes included in V_bT. The V_aT morphemes express action directed toward a goal. Examples of V_aT: ʔa- *to do, make*; bï- *to bring*; is- *to see*; tis- *to take out (as with tweezers)*; čą- *to break down*; ɨ- *to leave*; ʔiá- *to carry over one's shoulder*; ʔikó- *to hug*; amá- *to step on*; ʔašą́- *to fish with poison from plants*; boą- *to carry*; ʔee- *to swallow*; ʔono- *to sew*; ąkï- *to finish*; anï-[11] *to name*; bari- *to look for*; maï- *to sweep*; bokǫ́-[12] *to pile up*; šoą- *to scratch.*

Morpheme Class V_aT' comprise a short list of transitive verb roots which express action directed toward a goal. They manifest the $TRoot_1^{V_aT'}$ grammeme which is included in a hypergrammeme whose manifestations form a class of hypermorphemes included in V_bT (see Chart 1). Examples of Class V_aT': -mïš- *to pluck*; -iš- *to scrape*

[11] In general, noun and verb classes are distinct, but there is some class cleavage of which this is one example: anï- *to name*, anï *a name.*

[12] The corresponding intransitive verb root is boko- *to pile up*. There are some fused hypermorphemes where it is not convenient to break down the hypermorpheme into component morphemes, and hence not useful to symbolize them as a sequence of morphemes. The reason for this is that the list of forms which demonstrate the presence of morpheme fusion show so much irregularity that no consistent phoneme shape of the constituent affixual morphemes can be abstracted. Note the following transitive-intransitive pairs (phonemic stress being on the first syllable unless indicated elsewhere—an orthographic rule followed in general through the paper):

	transitive	intransitive
to pile up	bokǫ́-	boko-
to scratch	šoą-	šoa-
to lay, lie	raką́-	rakáː
to sink	nanɨ́-	nanɨ́ː
to free, go out	čikɨ́-	čikíː
to pass	ino-	inó-
to forget	mano-	manó-

roughly; -ïš- *to scrape smooth*; -ño- *to clothe, put on*. As included in the hypergrammeme manifestation: + na- *inside* + -ïš- *to scrape smooth* > naïš- *to scrape the inside smooth*.

Morpheme Class V_an_1 consists of verb roots which are neutral in that they express action with no consideration of a goal. They manifest the grammeme $NeuRoot_1$ V_an_1, which occurs in a hypergrammeme manifested by a V_bT hypermorpheme (see Chart 1). Examples of Class V_an_1: bï- *to blow*; biri- *to flash*; ba- *to open, raise*; baáš- *to split and tear*; tirį- *to go out*; biís- *to cut*; boá- *to fill*; kï- *to call*; koka- *to cook by boiling*; narás- *to tear*; pïą- *to make a hole in*; raą- *to drag along*; pį- *to fight, hit*; tikirį- *to hit with the hand*; naš- *to prick*; tïkïrï- *to tie*; pakáš- *to be rapids*. As included in the hypergrammeme manifestation: + boá- *to fill* + -ka- *transitivizer* > boáka- *to fill (something)*.

Morpheme Class V_an_2 is another class of verb roots which are neutral in that they express action with no consideration of a goal. This class manifests the grammeme $NeuRoot_2$ V_an_2, which occurs in a further hypergrammeme manifested by a V_bT hypermorpheme (see Fn9). Examples of Class V_an_2: -ïs- *to singe*; -pï- *to open*; -taš- *to hit*; -biáš- *to lick*. As included in a hypergrammeme manifestation: + bï- *face* + -biáš- *to lick* + -ka- *transitivizer* > bïbiáška- *to lick the face of*.

Morpheme Class 112 contains the suffix -ka-, which is transitivizing in meaning, and manifests the grammeme tr^{112} (see Chart 1 and Fn9). Examples of suffix 112 as included in hypergrammeme manifestations: + narás- *to tear* + -ka- *transitivizer* > naráska- *to tear (something)*; + ra- *side* + -ïs- *to singe* + -ka- *transitivizer* > raïska- *to singe the side*.

Prefix Class 00 is composed of single morphemes and hypermorphemes. The single morphemes are prefixes of Class 10–20 and prefix of Class 30. The hypermorphemes are composed of a combination of these two prefix classes. Class 00 manifests the grammeme Pre^{00} which is included in expanded grammemes and hypergrammemes (see Chart 1 and Fn9) whose manifestations are V_bT hypermorphemes.

Prefix Class 10–20 has the general meaning of body parts; the members are alternant forms of certain noun-root morphemes, and in general consist of the initial vowel, or initial consonant-plus-vowel of the noun-root morpheme. Class 10–20 manifests the $Pre^{10\text{-}20}$ grammeme. Prefixes of this class are: 11 ba- *elbow*; 12 bï- *face, eye*; 13 ci- *butt, large end*; 14 i- *tail*; 15 ka- *back*; 16 k^{w}ï- *mouth, border*; 17 ma- *head*; 18 mï- *hand*; 19 na- *the inside*; 21 pa- *ear*; 22 pï- *arm*; 23 rï- *point, small end*; 24 ši- *chest*; 25 ši- tooth; 26 ta- *foot*; 27 tï- *neck, throat*; 28 či- *fire*; 29 ši- *corn*. As included in a hypergrammeme manifestation: ± mï- *hand* + naš- *to prick* + -ka- *transitivizer* > mïnáška- *to prick the hand of*.

Prefix Class 30 consists of the morpheme ra- (31), meaning *side*, whether of an inanimate object or as a body part; it is an alternant form of the noun-root morpheme rapaso *side*. It manifests the grammeme Pre^{30}. As included in a hypergrammeme manifestation: + ra- *side* + -ïš- *to scrape smooth* > raïš- *to scrape the side smooth*.

Class 10–20 followed by Class 30 constitute a class of hypermorphemes which manifest the expanded grammeme (± $Pre^{10\text{-}20}$ + Pre^{30}). Examples of the hypermorpheme class are: mara *side of the head*, [± ma- (17) *head* + ra- (31) *side*]; nara *the side of the inside (as of a canoe)*, [± na- (19) *inside* + ra- (31) *side*]. As included in a hypergrammeme manifestation: + tara: *the side of the foot* + -ïs- *to singe* > taraïs- *to singe the side of the foot*.

Morpheme Class N consists of noun root morphemes with the meaning of concrete object or attributive quality; Class N manifests the Adj^{N} grammeme in a hypergrammeme whose manifestations form a class of hypermorphemes included in V_bT (see Fn9). Examples of Class N noun root morphemes: sipo *jail*; čabá *wet*; bïci *other, of other type*; čaa *big*. As included in the

hypergrammeme manifestation: + bïci- *other* + ʔa- *to do, make* > bïcia-[13] *to transform.*

Morpheme Class ɔ-/ʔa- is a subclass of verb root morphemes: ɔ- *to do, make (specific)*, and ʔa- *to do, make (general)*. Class ɔ-/ʔa- manifests the grammeme $Conj^{ɔ-/ʔa-}$ which is included in a hypergrammeme with grammeme Adj^{N}; the manifestations of the hypergrammeme form a class of V_bT hypermorphemes. Examples of the verb root subclass in the hypergrammeme manifestation: + sipo *jail* + ʔa- *to do, make* > sipoa- *to put in jail*; + barį *by means of the sun* + ɔ- *to do, make* > barįɔ-[13] *to sun (something).*

2.2.1.1.2. The grammeme constituents in the V_bT class of morphemes and hypermorphemes of Transitive Core are now to be presented. We have already discussed all the fillers for the spots on the lowest levels of analysis of Core—as the reader can see by checking Chart 1. There remains to show how the grammemes (combining spots and fillers) are included in Core which is included in Base. We shall do this before going on to discuss morpheme classes outside of Core.

Grammeme $TRoot^{V_aT}$ (see Chart 1) is manifested by the V_aT class of verb root morphemes, and, like the morphemes manifesting it, has the meaning of action directed toward a goal. This grammeme occurs as the basic grammeme and also as the expansion grammeme, in an expanded grammeme whose manifestation is a V_bT hypermorpheme (see Fn9): (± $TRoot^{V_aT}$ + $TRoot^{V_aT}$), as in ± ʔikó- (V_aT) *to hug* + boį- (V_aT) *to carry* > ʔikóboį- (V_bT) *to carry hugging*, and in ± boą- (V_aT) *to carry past* + boą- (repeated) > boąboą- (V_bT) *to keep on carrying past.* It occurs also as the basic grammeme in a similar expanded grammeme of which the expansion grammeme is $IRoot^{V_aI}$ (details of the analysis of this intransitive root grammeme are given in **3.2.1.1.2**): (± $IRoot^{V_aI}$ + $TRoot^{V_aT}$) (not shown in Chart 1, see fn), as in ± kʷai- (V_aI) *to play* + ɔ- (V_aT) *to do, make* > kʷaiɔ- (V_bT) *to play (games).* The $TRoot^{V_aT}$ grammeme may also be expanded by grammeme Pre^{00}; the manifestations of the expanded grammeme form a further class of V_bT hypermorphemes (see Fn9): (± Pre^{00} + $TRoot^{V_aT}$), as in + mara (± 17 + 31) *the side of the head* + tïrį-(V_aT) *to wipe clean or dry* > máratïrį- (V_bT) *to wipe the side of the head clean or dry.*

Grammeme $TRoot_1^{V_aT'}$ is manifested by the V_aT' class of verb root morphemes, and has the meaning of action directed toward a goal. It combines with grammeme Pre^{00} in a hypergrammeme which is manifested by a class of V_bT hypermorphemes: (+ Pre^{00} + $TRoot_1^{V_aT'}$) (see Chart 1), as in + ra- (31) *side* + -mïš- (V_aT') *to pluck* > ramïš- (V_bT) *to pluck the side of the head.*

Grammeme $NeuRoot_1$ V_an_1 is manifested by the V_an_1 class of verb root morphemes and, like the morphemes manifesting it, expresses action with no goal considerations. It combines with the root-transitivizing grammeme tr^{112} in a hypergrammeme which is manifested by a class of V_bT hypermorphemes (see Chart 1): (+ $NeuRoot_1$ V_an_1 + tr^{112}), as in + baáš- (V_an_1) *to split and tear* + -ka- (112) *transitivizer* > baáška- *to split and tear (something).* It also combines with the root-intransitivizing grammeme in a hypergrammeme whose manifestation is a V_bI hypermorpheme (cf. **3.2.1.1.2**).

Grammeme $NeuRoot_2$ V_an_2 is manifested by the V_an_2 class of morphemes, and expresses action with no goal considerations. It combines with the Pre^{00} grammeme and the tr^{112} grammeme to form a complex hyper-

[13] There are certain regular morpheme modifications: when a suffix begins with vowel ɔ, a final vowel a of the preceding morpheme becomes ɔ; when a morpheme-final nasalized vowel is followed by a suffix whose initial vowel is basically oral, the suffix vowel becomes nasalized; when a verb root basically beginning with ʔ occurs second in combination with another morpheme, the ʔ is omitted; š is the result when š and š fuse in morpheme sequences.

grammeme manifested by a class of V_bT hypermorphemes (see Fn9): (+ Pre^{00} + $NeuRoot_2\ V_an_2$ + tr^{112}), as in + ta- (26) *foot* + -ïs- (V_an_2) *to singe* + -ka- (112) *transitivizer* > taíska- (V_bT) *to singe the feet (as of a bird)*. The $NeuRoot_2\ V_an_2$ grammeme is also included in a complex hypergrammeme with the Pre^{00} grammeme and the root-intransitivizing grammeme; the manifestations of the hypergrammeme form a class of V_bI hypermorphemes (cf. **3.2.1.1.2**).

Grammeme tr^{112} is manifested by suffix -ka- (112), and is transitivizer of the neutral verb root. It combines with the NeuRoot V_an_1 grammeme in a hypergrammeme which has been presented in the description of the $NeuRoot_1\ V_an_1$ grammeme. A further example of the tr^{112} grammeme as included in the (+ $NeuRoot_1\ V_an_1$ + tr^{112}) hypergrammeme: + baís- (V_an_1) *to revive* + -ka- (112) *transitivizer* > baíska- (V_bT) *to revive (someone)*. The hypergrammeme may be expanded to include a repetition of the tr^{112} grammeme, giving the added meaning of continuation; for example, + šaí- (V_an_1) *to move* + -ka- (112) + -ka- (112) > šaíkaka (V_bT) *to keep moving*. The tr^{112} grammeme also combines with the Pre^{00} grammeme and the $NeuRoot_2\ V_an_2$ grammeme in the complex hypergrammeme presented in the description of the $NeuRoot_2\ V_an_2$ grammeme. A further example of grammeme tr^{112} as included in the (+ Pre^{00} + $NeuRoot_2\ V_an_2$ + tr^{112}) hypergrammeme: + bï- (12) *face* + biáš- (V_an_2) *to lick* + -ka- (112) *transitivizer* > bïbiáška- (V_bT) *to lick the face of*.

Grammeme Pre^{00} is manifested by the 00 class of morpheme and hypermorpheme classes. Its occurrence with the $TRoot_1^{V_aT'}$ grammeme in hypergrammeme (+ Pre^{00} + $TRoot_1^{V_aT'}$) has already been referred to under the $TRoot_1^{V_aT'}$ grammeme. A further example of the Pre^{00} grammeme in this hypergrammeme: + mï- (18) *hand* + -ño- (V_aT') *to clothe, put on* > mïño- (V_bT) *to put on the hand*. The Pre^{00} grammeme also combines with the $NeuRoot_2\ V_an_2$ grammeme and the tr^{112} grammeme in the complex hypergrammeme (+ Pre^{00} + $NeuRoot_2\ V_an_2$ + tr^{112}), illustrated in the descriptions of the grammemes $NeuRoot_2\ V_an_2$ and tr^{112}. Furthermore, the grammeme Pre^{00} occurs as the expansion of the basic $TRoot^{V_aT}$ grammeme (± Pre^{00} + $TRoot^{V_aT}$), presented in the description of the $TRoot^{V_aT}$ grammeme; a further illustration of grammeme Pre^{00} as included in this expanded grammeme: ± tï- (27) *neck* + ʔikó- (V_aT) *to hug* > tïikó- (V_bT) *to hug around the neck*. The Pre^{00} grammeme also occurs in the following hypergrammeme expansion {± Pre^{00} + (+ $NeuRoot_1\ V_an_1$ + tr^{112})} (not shown in Chart 1, see fn 9), whose manifestation is a further type of V_bT hypermorpheme: ± mï- (18) *hand* + bíś- (V_an_1) *to cut* + -ka- (112) *transitivizer* > mïbíśka- (V_bT) *to cut (someone's) hand*. The grammeme Pre^{00} also occurs in certain hypergrammemes, and expanded grammemes and hypergrammemes, whose manifestations are V_bI hypermorphemes. These will be described in **3.2.1.1.2.** Grammeme Pre^{00} occurs in certain noun words, whose description is beyond the scope of this paper.

Grammeme Adj^N has the meaning of object or quality with which or upon which action is performed. It combines with the $Conj^{ɔ-/ʔa-}$ grammeme in a hypergrammeme whose manifestation is a class of V_bT hypermorphemes (see Fn9). It is manifested by N morphemes such as čabá *wet*, čaa *big*, bari *sun*. (For illustrations within the hypergrammeme, see grammeme $Conj^{ɔ-/ʔa-}$ below.)

Grammeme $Conj^{ɔ-/ʔa-}$ has the meaning of action with or upon some attribute or object. It is manifested by a subclass of verb roots comprised of ɔ- and ʔa-. It occurs in a hypergrammeme with the Adj^N grammeme: (+ Adj^N + $Conj^{ɔ-/ʔa-}$), and is illustrated in + čabá (N) *wet* + ɔ- *to do, make* > čabɔ́ɔ-[13] (V_bT) *to make wet*.

2.2.1.2. Intransitive Core of Transitive Base is shown in Chart 2 as to position in the principal person transitive verb. The

chart shows only one of the various classes of manifestations for the $ICore^{V_bI}$ grammeme. The others will be shown in a subsequent chart in **3.2.1.** Here we are concerned only with the fact that the intransitive core grammeme combines with a transitivizing grammeme of class Suf...$^{y\cdots}$ in a hypergrammeme (+ $ICore^{V_bI}$ + Suf...$^{y\cdots}$) whose manifestations form a class of transitive base hypermorphemes included in V_eT. The example given in Chart 2: ʔibómiašį *he or they put down or caused (something) to be down.*

2.2.1.3. Suffix hyperclasses are optionally, and in some cases obligatorily, included in Transitive Base. There are three such suffix hyperclasses: hyperclass x which manifests the Suf...$^{x\cdots}$ class of grammemes has no effect on transitivity, and is comprised of classes 130, 150, 210, 420, and 220 to 290; hyperclass y which manifests the Suf...$^{y\cdots}$ class of grammemes is transitivizing, and is comprised of suffixes of classes 140T, 160, 170, 190; hyperclass z which manifests the Suf...$^{z\cdots}$ class of grammemes is intransitivizing, and is comprised of suffixes of classes 120, 140I, 180. Chart 3a and Chart 3b will serve to portray the membership of the suffix morpheme classes of the hyperclasses x, y, z, and to indicate the basic relative order in which the grammemes they manifest occur. Chart 3a shows Suffix Groups A and C in conjunction with Transitive Core; the complete suffix content combining with Core to form Transitive (or Intransitive) Base could be shown by inserting Suffix Group B of Chart 3b in Chart 3a in the place indicated by three dots. (The groups are so arranged because of position in relation to Core and Margin, Group A occurring next to Core, Group C next to Margin, and Group B between Groups A and C.) No actual example has been found of the largest implied possible forms. Examples of Transitive Verb Base containing suffix grammemes of Groups A and C: + bi- (V_bT) *to get* ± -ro- (131) *up* ± -poǫ́- (271) *this morning* ± -ką- (281) *the others, incorporated subject* > bíropoǫ́ką- (V_eT) *the others pick up this morning*; + činą́- (V_bT) *to throw out* ± -pa- (132) *down* ± -ką- (281) *the others, incorporated subject* ± -ki- (291) *habitual in past* > činą́pakąki- (V_eT) *the others used to vanquish or discard.* Examples of Transitive Verb Base containing suffix grammemes of Group B, and also of Groups A and C: + mïï- (V_bT) *to hit* ± -aną́- (181) *reciprocal* ± -mi- (161) *causative* ± -tīkį- (221) *again* > mïïanąmitīkį- *to again cause to hit one another*; + ʔa- (V_bT) *to do, make* ± -pa- (132) *down* ± -kiį- (191) *to help to* ± -tīkį- (221) *again* ± -bią- (241) *while going* ± -ką- (281) *the others* > ʔapákįtīkįbiąką- *the others help to plant again while going.*

In the following section, suffix hyperclasses x, y, and z will be described as to individual members constituting the included classes; following this, the suffix grammemes manifested by these classes will be de-

Chart 2

Principal Person Transitive Verb (with Intransitive Core)

+	$TBase^{V_eT}$					++	$PersMargin_p^{300A}$					
+	(+$ICore^{V_bI}$	±	Suf...$^{x\cdots}$	+	Suf...$^{y\cdots}$)							
+{+	(+$IRoot^{V_aI}$	±	Dir^{x130})	+	$Caus^{y160}$}	+	(+$Tense^{310\text{-}320}$	+	$Pers^{390}$	)		
+{+	(+ ʔi-	±	-bo-)	+	-mi- }	+	(+ -a-	+	-šį	)		
	to be		*down*		*causative*		*immediate past*		*third person*			

Chart 3a

V_eT of TBase, as (+ $TCore^{VbT}$ ± Suf...^{x}··· ± Suf...^{y}··· ± Suf...^{z}...*)

	Suffix Group A				Suffix Group C		
+{+$TCore^{VbT}$	± $Refl^{z120}$	± Dir^{x130}/	± $Regr^{y140T}$/	±± $Regr^{z140I}$...†	±AM^{x270}	± $IncorS^{x280}$	± Hab^{x290}}
	121: -aka- *reflexive*	131: -ro- *up*	141: -na- *in opposite direction*	143: -nakí- *in opposite direction*	271: -pǫ-∞ -poǫ́- *this morning*	281: -ką- *they, the others*	291: -ki- *habitual in past*
	122: -mĩ- *reflexive*	132: -bo-∞ -pa- *down*	142: -ara-∞ -ra- *to return*	144: -rakí- *to return*			

* Grammemes of the Suf...^{x}··· class are included in TBase only if followed by at least one grammeme from the Suf...^{y}··· class.

† Group B, as in Chart 3b, might be inserted here.

Chart 3b

Suffix Group B

±$Incep^{x150}$	±$Caus^{y160}$	±Ben^{y170}	±$Recip^{z180}$	±Aux^{y190}	±$Abil^{x210}$	±Asp^{z220}	±Rep^{x229}	±$First^{x230}$	±Amb^{x240}	±$Exten^{x250}$	±$Noct^{x260}$
151: -taba- *for the first time*	161: -mi- *causative*	171: -ą̃ǫ- *benefactive*	181: -aną- *reciprocal*	191: -ki- ∞ -kiį- *help to*	211: -kas- *want* 212: -kasmá-∞ -kasma- *cannot*	421: -ribi- *also* 422: -iši- *only* 423: -ira- *much, well* 424: -racó- *a little*	221: -tĩkĩ- *again*	231: -pą- ∞ -paį- *first*	241: -bią- ∞ -kią- *going* 242: -bicį-∞ -k^{w}acį- *coming* 243: -okobią́-∞ -okokią́- *going haltingly* 244: -okobicį-∞ -okok^{w}acį- *coming haltingly*	251: -bai- *continuative*	261: -nĩ- *at or during the night*

scribed—which description will show how the grammemes, in combination with Core, are included in Transitive Base.

2.2.1.3.1. The morpheme classes in the suffixation included in Transitive Base will be described as to hyperclasses in the order x, y, z.

Suffix hyperclass x manifests the Suf...^{x}··· class of grammemes (whose distribution will be explained in **2.2.1.3.2**). The meaning of the hyperclass is modification of the core, with no effect on transitivity. The members of the hyperclass according to decade classes are as follows:

Morpheme Class 130 is directional in meaning, and manifests the grammeme Dir^{130}.

Morpheme 131, -ro- *up*, directional or in the sense of intensifying: + bi- (V_bT) *to get, receive* ± -ro- > biro- *to pick up*; + ni- (V_bI) *to walk, stand* ± -ro > niro- *to stand up*.

Morpheme 132, -bo- ∞ -pa- *down* in the sense of direction or deterioration. Allomorph -bo- occurs with an intransitive core and allomorph -pa- with a transitive core. Examples: + raąka- (V_bT) *to drag* ± -pa- > raąkapa- *to drag down, to launch*; + ʔi- (V_bI) *to be* ± -bo- > ʔibó- *to get down, to be down.*

Morpheme Class 150 is inceptive in meaning; it manifests the grammeme Incep^{x150}, and contains the unique morpheme—

Morpheme 151, -tabá- *for the first time*, also *inceptive*: + ʔa- (V_bT) *to do, make* ± -tabá- > ʔátabá- *to do for the first time*; + ʔi- (V_bI) *to be* ± -tabá- > ʔítabá- *to be for the first time*.

Morpheme Class 210 pertains to ability or desire; it manifests the grammeme Abil^{x210}. Class 210 contains the morpheme 211 and hypermorpheme 212.

Morpheme 211, -kas- *to want to*; the morpheme -kas- forms an alloclass of Class 210 which manifests the grammeme Desid^{211} in a hypergrammeme whose manifestation is hypermorpheme 212. Example of morpheme -kas- in combination with Core: + pi- (V_bT) *to eat* ± -kas- > pikas- *to want to eat, to be hungry*; + ʔoš- (V_bI) *to sleep* ± -kas- > ʔoškas- *to want to sleep, to be sleepy*.

Hypermorpheme 212, -kasma- ∞ -kasmá- *cannot*. The conditioning of the allomorphs is not yet satisfactorily determined[14]. The hypermorpheme manifests the hypergrammeme (+ Desid^{211} + Neg^{410}). Examples: + bi- (V_bT) *to get* ± -kasmá- > bíkasmá- *not to be able to get*; + k^{w}ą- (V_bI) *to go* ± -ro- (131) *up* ± -kasma- > k^{w}árokásma- *not to be able to go up*.

Morpheme class 420 is aspectual in meaning, and manifests the grammeme Asp^{420}. It contains the following morphemes:

Morpheme 421, -ribi- *also*: + tïa- (V_bT) *to cut, sever* ± -ribi- (421) *also* ± -nï- (261) *at night* > tïaribinï- *to also cut off (sleep) at night*; + oš- (V_bI) *to sleep* ± -ribi- > ʔošribi- *also to sleep*.

Morpheme 422, -iši- *only, just, expressing limitation or concentration*: + boą́boą́- (V_bT) *to keep on carrying* ± -iši- > boą́boą́iši- *to just keep on carrying*; + cɔ́- (V_bI) *to sit* ± -iši- > cɔ́iši- *to just sit*.

Morpheme 423, -ira- *truly, superlatively*: + ʔoną́- (V_bT) *to learn* ± -ira- > ʔoną́ira- *to understand very well*; + abá- (V_bI) *to run* ± -ira- > abáira- *to run well*.

Morpheme 424, -raco- ∞ -ra/-ras *little, a little*; only the first of the allomorphs occurs in verbs. Examples: + maʃ́- (V_bT) *to sweep* ± -racó- > marʃ́acó- *to sweep a little*; + abá- (V_bI) *to run* ± -racó- > abáracó- *to run a little*.

Morpheme Class 220 is repetitive in meaning; it manifests the grammeme Rep^{x220}, and contains the unique morpheme—

Morpheme 221, -tïki- *again*: + ʔa- (V_bT) *to do, make* ± -tïkʃ́- > ʔatïkʃ́- *to*

[14] According to the present stage of analysis, the occurrences of the allomorphs of morphemes (or hypermorphemes) 212, 231, 271, and 191 are parallel (with possible minor exception). That is, allomorphs -kasma- *cannot*, -paʃ́- *first*, -poǫ́- *this morning*, -kiʃ́- *help to* occur in certain situations, and allomorphs -kasmá-, -pą-, -pǫ-, -kʃ́- in certain other situations. As to conditioning of the allomorphs, a tentative hypothesis is that the first series (-kasma-, -paʃ́-, etc.) follow stems containing an even number of vowels—stem being the part of the word preceding the morpheme under consideration—and the other series (-kasmá-, -pą-, etc.) follow stems containing an odd number of vowels. For example, with one-vowel stem ʔa- *to do, make*: ʔakasmá- *cannot do*, ʔapą- *do first*, ʔapǫ- *do this morning*, ʔakʃ́- *help to do*; with two-vowel stem ʔapá- *to plant* (having stress on the second vowel): ʔapákásma- *cannot plant*, ʔapápaʃ́- *plant first*, ʔapápoǫ́- *plant this morning*, ʔapákiʃ́- *help to plant*; with a further two-vowel stem, k^{w}aro- *to go up* (having stress on the first vowel): k^{w}árokásma- *cannot go up*, etc.; with a three-vowel stem ʔonąmi- *to teach* (having stress on the second vowel): ʔonámikasmá- *cannot teach*, ʔonąmipą- *teach first*, ʔonąmipǫ- *teach this morning*, ʔonąmikʃ́- *help to teach*; with a further three-vowel stem, našimi- *cause to bathe* (having stress on the first vowel): nášimikasmá- *cannot cause to bathe*, etc.; with a four-vowel stem abákią́- *to go running:* abákiąpoǫ́- *to go running this morning*; with a stem containing five vowels: ʔonąmitʃ́kïpą- *to teach again first*. (For the working of a similar hypothesis in Shipibo, a related language, see Lauriault, Alternate-mora Timing in Shipibo, IJAL 14.22–24, 1948.) However, the hypothesis as stated and illustrated above does not hold in all cases in Cashibo; for instance, tʃ́kïrïkikasmá- *cannot tie*. A stressed repetition of the preceding vowel accompanies the one-vowel allomorphs in certain instances: tʃ́kïrïkiípǫ- *tie this morning*, tʃ́kïrïkiíkʃ́- *help to tie*, etc.

do again; + o- (V_bI) *to come* ± -bo- (132) *down* ± -tĩkɨ- > obótĩkɨ- *to come down again*.

Morpheme Class 230 is positional as to time; it manifests the grammeme First^{x230}, and contains the unique morpheme—

Morpheme 231, -paɨ- ∞ -pa- *first*; for occurrence of the allomorphs, see Fn14. Examples: + pi- (V_bT) *to eat* ± -pą- > pipą- *to eat first*; + naši- (V_bI) *to bathe* ± -paɨ- > nášipaɨ- *to bathe first*.

Morpheme Class 240 is ambulatory in meaning; it manifests the grammeme Amb^{x240}, and contains the following morphemes and hypermorphemes:

Morpheme 241, -bią- ∞ -kią- *while going*. Allomorph -bią- follows transitive accumulated preceders, allomorph -kią- follows intransitive accumulated preceders. Examples: + ɨ- (V_bT) *to leave* ± -bią- > ɨbią- *to leave behind*; + baki- (V_bI) *to rise* ± -ro- (131) *up* ± -kią- > bakirokią- *to raise up going*.

Morpheme 242, -bĩcɨ- ∞ k^{w}acɨ- *coming, come from*. Allomorph -bĩcɨ- follows transitive accumulated preceders, allomorph -k^{w}acɨ- follows intransitive accumulated preceders. Examples: + bokǫ́- (V_bT) to pile ± -bĩcɨ- > bokǫ́bĩcɨ- *to come from piling*; + baki- (V_bI) *to rise up* ± -ro- (131) *up* ± -k^{w}acɨ- > bákirok^{w}acɨ- *to rise up coming*.

Hypermorpheme 243, -okobią- ∼ -okokią- *to follow, pausing and then going on*; it is composed of morpheme -oko- *stopping and starting* in conjunction with morpheme 241, -bią- ∞ -kią- *while going*, in the manifestation of the hypergrammeme (+ Haltingly^{-oko-} + Going^{241}). Examples: + is-(V_cT) *to see* ± -okobią- (243) > ísokobią- *to see following haltingly*; + ni- (V_bI) *to walk* ± -rakɨ- (144) *return* ± -okokią- > nirakɨokokią- *to arrive back going haltingly*.

Hypermorpheme 244, -okobĩcɨ- ∞ -okok^{w}acɨ- *to follow, pausing and then coming on* is comprised of the morpheme -oko- in conjunction with morpheme 242, -bĩcɨ- ∞ -k^{w}acɨ- *coming*; it manifests the expanded grammeme (+ Haltingly^{-oko-} + Coming^{242}). Examples: + noi- (V_bT) *to follow* ± -okobĩcɨ- > noiokobĩcɨ- *to come following haltingly*.

Morpheme Class 250 indicates extension of the time of the state or action of the verb. It manifests the grammeme Exten^{x250}, and contains the unique morpheme—

Morpheme 251, -bai- *continuative*: + kaɨ- (V_bT) *to wait for* ± -bai- > kaɨbai- *to wait a long time for*; + cɔ́- (V_bI) *to sit* ± -bai- > cɔ́bai- *to sit for a long time*.

Morpheme Class 260 is nocturnal in meaning; it manifests the grammeme Noct^{x260}, and contains the unique morpheme—

Morpheme 261, -nĩ- *at or during the night*: + ʔoš- (V_bI) *to sleep* ± -kasmá- (212) *inability* ± -nĩ- > ʔóškasmánĩ- *to not be able to sleep during the night*; + pi- (V_bT) *to eat* ± -nĩ- *at night* > pinĩ- *to eat at night*.

Morpheme Class 270 indicates morning, as to time. It manifests the grammeme AM^{x270}, and contains the unique morpheme—

Morpheme 271, -poǫ́- ∞ -pǫ- *in the morning, this morning*; for distribution of the allomorphs, see Fn14. Examples: + ka- (V_bT) *to say* ± -pǫ- > kapǫ- *to say this morning*; + abá- (V_bI) *to run* ± -kią- (241) *while going* ± -poǫ́- > abákiąpoǫ́- *to go running this morning*.

Morpheme Class 280 is an incorporated subject of third person. It manifests the grammeme IncorS^{x280}, and contains the unique morpheme—

Morpheme 281, -ką- *they, the others of a specific group*: + tĩną- (V_bT) *to withhold* ± -ką- > tĩnąką- *the others withhold*; + o- (V_bI) *to come* ± -ką- > oką- *the others come*.

Morpheme Class 290 expresses habitual action in the past. It manifests the grammeme Hab^{x290}, and contains the unique morpheme—

Morpheme 291, -ki- *habituality in the past*: + ʔapá- (V_bT) *to plant* ± -ki- > ʔapáki- *used to plant*; + bĩro- (V_bI) *to stay, abide* ± -ki- > bĩroki- *used to stay*.

Suffix hyperclass y manifests the Suf...^{y}... class of grammemes (whose distribution

will be explained in **2.2.1.3.2**); it is transitive or transitivizing in meaning. The members of the hyperclass according to decade classes are as follows:

Morpheme Class 140T has the meaning of regression as to manner or direction; it manifests the grammeme Regr^{y140T}.

Morpheme 141, -na- accompanied by change of stress position in the preceding morpheme, indicates *in the opposite manner or direction*. Examples: + siną́- (V_bT) *to think* ± -na- > sinąna- *to change the mind*; + cɔ́ɔ- (V_bI) *to sit* ± -na- > cɔɔna- *to place upright (of something that has fallen over)*.

Morpheme 142, -ara- ∞ -ra- *to return, to turn making a complete circle*; alternant -ra- occurs in hypermorpheme 144 of hyperclass z, -ara- otherwise: + pį̄kī- (V_bT) *to turn over* ± -ara- > pį̄kīara- *to turn (something) over*[15].

Morpheme Class 160 has the meaning of causation; it manifests the grammeme Cuas^{y160}, and contains the unique morpheme—

Morpheme 161, -mi- *causative*: + ʔoną́- (V_bT) *to know, learn* ± -mi- > ʔonąmi- *to teach*; + ʔi- (V_bI) *to be* ± -bo- (132) *down* ± -mi- > ʔibómi- *to put down*.

Morpheme Class 170 is benefactive in meaning; it manifests the grammeme Ben^{y170}, and contains the unique morpheme—

Morpheme 171, -ʂǫ- *benefactive*: + bï- (V_bT) *to bring* ± -ʂǫ- > bïʂǫ- *to bring for (someone)*; + abá- (V_bI) *to run* ± -ʂǫ- > abáʂǫ *to run for (someone)*.

Morpheme Class 190 is auxiliary in meaning; it manifests the grammeme Aux^{y190}, and contains the unique morpheme—

Morpheme 191, -kiį́- ∞ - kį- *help to*; for distribution of the allomorphs, see Fn14. Examples: + mīī- (V_bT) *to work* ± -kiį́- > mīīkiį́- *to help to work*; + ni- (V_bI) *to walk, stand* ± -kį- > nikį- *to help walk*.

[15] No example is at hand of this morpheme following an intransitive core; it is assumed in this presentation that the gap is because of insufficient data.

Suffix hyperclass z manifests grammemes of the Suf...^{z}··· class of grammemes which occur in Transitive Base only when followed, contiguously or non-contiguously, by a grammeme of the Suf...^{y}··· class of grammemes. It is intransitive or intransitivizing in meaning. Hyperclass z contains two morpheme classes and one hypermorpheme class. They are as follows:

Morpheme Class 120 is reflexive in meaning; it manifests the grammeme Refl^{z120}, and contains the following morphemes:

Morpheme 121, -aka- *reflexive*. Examples: + mīī- (V_bT) *to hit* ± -aka- > mīīaka- *to hit oneself*; + bííski- (V_bI) *to cut* ± -aka- > bíískiada- *to cut onself*.

Morpheme 122, -mī- *reflexive* (not completely interchangeable with 121; the difference of signification between 121 and 122 has not been determined). Examples: + rátīrį́- (V_bT) *to wipe the side clean or dry* ± -mi- > rátīrį́mī- *to wipe one's side clean or dry*[15].

Hypermorpheme Class 140I has the meaning of regression and intransitivity; it manifests the hypergrammeme (+ Regr^{y140T} + Compl^{-kI}), which is symbolized in Chart 3a as ±± Regr^{z140I}. The manifestations of the hypergrammeme are:

Hypermorpheme 143, -nakī- accompanied by change of stress position in the preceding morpheme, indicates *in the opposite manner or direction*. The morphemes composing this hypermorpheme are -na-, already described as a member of the 140T class of morphemes, and -kī- *completive*, manifesting the grammeme Compl^{-kI}. Examples: + tį̄tǫ́- (V_bT) *to bend* ± -nakī- > tį̄tǫnakī- *to be bent over*; + k^{w}aį́- (V_bI) *to pass by* ± -nakī- > k^{w}áįnakī- *to turn around*.

Hypermorpheme 144, -rakī- *to return*. The morphemes composing this hypermorpheme are -ra- (142) and -kī- *completive*, described as a part of hypermorpheme 143. Examples of hypermorpheme 144: + pį̄kī- (V_bT) *to turn* ± -rakī- > pį̄kīrakī- *to turn onself over*; + ni- (V_bI) *to walk* ± -rakī- > nírakī- *to arrive back again*.

Morpheme Class 180 is reciprocal in

meaning; it manifests the grammeme Recip^{z180}, and contains the unique morpheme—

Morpheme 181, -aná- *reciprocal*: + noi- (V_bT) *to love, to follow* ± -aná- > nóianá- *to love each other, to be friends.*

2.2.1.3.2. The grammemes manifested by the morpheme classes just described fall into three groups according to position. Group A occurs next to the core grammeme, and is not preceded by grammemes of Groups B and C (except when grammeme Asp^{420} is inserted in the core, as described later in this section); the constituent grammemes maintain the positions indicated in Chart 3a. Group C occurs next to the margin, and is not followed by grammemes of Groups A and B; the constituent grammemes maintain the positions indicated in Chart 3a. Only one or two of the possible grammemes of Group C may occur within a single word; the sequences of two which may occur are indicated by the ligatures below the grammemes. Group B occurs between Groups A and C; its members show great flexibility as to position, as indicated in Chart 3c. The grammemes will be described according to the grammeme classes Suf...$^{x\cdots}$, Suf...$^{y\cdots}$, Suf...$^{z\cdots}$.

The Suf...$^{x\cdots}$ class of grammemes has the meaning of modification of the core, and is manifested by the suffix hyperclass x. The grammemes of this class occur optionally as an expansion in Transitive Base, as seen in Chart 1, and in Intransitive Base as seen in Chart 6 (**3.2.1.1**). The individual grammemes are as follows, with examples of each in combination with Transitive Core, forming Transitive Base:

Grammeme Dir^{x130} is manifested by suffixes of Class 130, and is directional in meaning. It occurs in Suffix Group A where it may be preceded by the grammeme Refl^{x120}. It does not occur in the same word with the Regr^{y140T} grammeme or the hypergrammeme appearing as ±± Regr^{z140I} in Chart 3a, but is nevertheless considered a separate grammeme from the others because of the sharply different function—Dir^{x130} has no effect on transitivity, while Regr^{y140T} is transitivizing and ±± Regr^{z140I} is intransitivizing. Examples of Dir^{x130} combining with Transitive Core: (+ TCore^{VbT} ± Dir^{x130}), + čoɔ̀ɔ- (V_bT) *to make clay mix by kneading* ± -ro- (131) *up* > čoɔ̀ɔro- (V_eT) *to make pure good clay mix.*

The following seven grammemes of the Suf...$^{x\cdots}$ class of grammemes occur in Group B, where they may be preceded and followed by certain grammemes of the Suf...$^{y\cdots}$ class and of the Suf...$^{z\cdots}$ class. The positions of the grammemes of Group B may vary. Chart 3b indicates an overall basic relative order; Chart 3c indicates the compatibility of the suffix grammemes, and their interchangeability of position. In Chart 3c each suffix is indicated in the column below it by a cross, a tick, or a double-pointed arrow. The ticks to the right of a certain cross indicate that the crossed grammeme may be followed by any of the ticked grammemes; the double-pointed arrows to the right of a crossed grammeme indicate that the crossed grammeme may be followed or preceded by the arrow-indicated grammeme. The chart does not claim to exhaust the possibilities of occurrence, but represents the results of investigation to date with the dialect under discussion[16]. The positional status of each grammeme is indicated in relation to each of its following grammemes, without consideration of the implied possible combinations of intervening grammemes; in combinations of grammemes where interchangeability is indicated, the grammemes may be interchanged provided that none of the implications of the chart are violated.

Grammeme Incep^{x150} is inceptive in meaning, and is manifested by Suffix Class 150. It occurs in Suffix Group B where it

[16] The dialects of the Cashibo groups of the San Alejandro and the Pintayo Rivers (tributaries of the Aguaitía River) permit of much more diversity and interchange of order than does the dialect of the group on the Shambuyacu River now under discussion.

may be followed or preceded by grammeme Rep^{x220}, or followed by grammeme Amb^{x240}. Example of (+ TCore^{VbT} ± Incep^{x150}): + ʔa- (V_bT) *to do, make* ± -taba- (151) *for the first time* > ʔataba- (V_cT) *to do for the first time.*

Grammeme Abil^{x210} has ability or non-ability as its meaning, and is manifested by Suffix Class 210. It occurs in Suffix Group B where it may be preceded by grammemes Caus^{y160}, Ben^{y170}, Recip^{z180}. When manifested by suffix 211 (that is, as allogram Desid^{211}), it is rarely followed by other grammemes of Groups B and C; however, when manifested by hypermorpheme 212 it may be preceded or followed by grammemes Auz^{y190} and Rep^{x220}; it may be followed by grammemes Asp^{420}, Amb^{x240}, Exten^{x250}, Noct^{x260} [17]. Example of (+ TCore^{VbT} ± Abil^{x210} ± Amb^{x240}): + pi- (V_bT) *to eat* ± -kasma- (212) *cannot* ± -bią- (241) *going* > pikásmabią- (V_cT) *cannot eat going.*

Grammeme Asp^{420} is manifested by suffixes of class 420, and is aspectual in meaning. Among Group B suffixes it may be preceded by grammemes Caus^{y160}, Ben^{y170}, Recip^{z180}, Aux^{y190}, Abil^{x210}; it may be preceded or followed by grammemes Rep^{x220}, Amb^{x240}, Exten^{x250}; it may be followed by grammemes First^{x230}, Noct^{x260}. Example of (+ TCore^{VbT} ± Asp^{420} ± Exten^{x250}): + pi- (V_bT) *to eat* ± -iši- (422) *only, just* ± -bai- (251) *continuative* > piišibai- *to have only been eating.* In addition to occurring as suffix to Transitive Core in Transitive Base as just described (and to Intransitive Core in Intransitive Base, cf. **3.2.1.3**), grammeme Asp^{420} may also be placed within a certain Transitive Core hypergrammeme: (+ NRoot^{Van_i} ± Asp^{420} + tr^{112}), as illustrated in + ba- (V_an_i) *to rise, open* ± -ira- (423) *well* + -ka- (112) *transitivizer* > bairaka- (V_cT) *to rise well*; similarly it may expand the corresponding Intransitive Core hypergrammeme (cf. **3.2.1.3**). It may also occur in Subordinate Margin of Transitive and Intransitive Verbs (cf. **2.2.2.2** and **3.2.2.2**), and in noun and attributive words.

Grammeme Rep^{x220} is repetitive in meaning, and is manifested by suffix class 220. Of the grammemes of Group B, Rep^{x220} is the most variable in position; it may be preceded by grammeme Recip^{z180}; it may be preceded or followed by grammemes Incep^{x150}, Caus^{y160}, Ben^{y170}, Aux^{y190}, Abil^{x210}, Asp^{420}, Amb^{x240}, Exten^{x250}, Noct^{x260}; it may be followed by First^{x230}. Example of (+ TCore^{VbT} ± Asp^{420} ± Rep^{x220} ± Exten^{x250}): + pi- (V_bT) *to eat* ± -ribi- (421) *also* ± -tĩkʃ- (221) *again* ± -bai- (251) *continuative* > píribitĩkʃbai- (V_cT) *to also have been eating again.*

Grammeme First^{x230} is manifested by suffix class 230, and has the meaning of first. It occurs in Group B position; it may be preceded by grammemes Caus^{y160}, Recip^{z180}, Aux^{y190}, Asp^{420}, Rep^{x220}; it may be preceded or followed by grammemes Ben^{y170}, Noct^{x260}; it may be followed by grammemes Amb^{x420}, Exten^{250}. Example of (+ TCore^{VbT} ± Asp^{420} ± First^{x230}): + siną- (V_bT) *to think* ± -ira- (423) *well* ± -paį- (231) *first* > sinąįrapaį- (V_cT) *to think well first.*

Grammeme Amb^{x240} is manifested by Suffix Class 240, and is ambulatory in meaning, expressing going or coming. It occurs in Group B position; it may be preceded by grammemes Incep^{x150}, Caus^{y160}, Recip^{z180}, Aux^{y190}, Abil^{x210}, First^{x230}; it may be preceded or followed by grammemes Ben^{y170}, Asp^{420}, Rep^{x220}; it may be followed by grammemes Exten^{x250}, Noct^{x260}. Example of (+ TCore^{VbT} ± Caus^{y160} ± Rep^{x220} ± Amb^{x240}): + ʔoną- (V_bT) *to know* ± -mi- (161) *causative* ± -tĩkʃ- (221) *again* ± -bią- (241) *going* > ʔonąmitĩkʃbai- (V_cT) *to teach again going.*

Grammeme Exten^{x250} has the meaning of continuation or extension of time in immediate past; it is manifested by Suffix Class 250. It occurs in Group B position where it may be preceded by grammemes

[17] There are restrictions as to length of word, and limitations because of semantic characteristics of the suffix classes and of the core with which the suffix grammemes are combining.

Caus^{y160}, Ben^{y170}, Recip^{x180}, Aux^{y190}, Abil^{x210}, First^{x230}, Amb^{x240}; it may be preceded or followed by grammemes Asp^{420}, Rep^{x220}; it may be followed by grammeme Noct^{x260}. Example of (+ TCore^{VbT} ± Rep^{x220} ± Exten^{x250}): + ʔ-ee- (V_bT) *to swallow* ± -iši- (422) *only, just* ± -bai- (251) *continuative* > ʔeeišibai- (V_oT) *to have been gulping down.*

Grammeme Noct^{x260} is nocturnal in meaning, and is manifested by suffix class 260. It occurs in Group B position, where it may be preceded by grammemes Caus^{y160}, Ben^{y170}, Recip^{x180}, Aux^{y190}, Abil^{x210}, Asp^{420}, Amb^{x240}, Exten^{x250}; it may be preceded or followed by grammemes Rep^{x220}, First^{x230}. Examples of (+ TCore^{VbT} ± Rep^{x220} ± Asp^{420} ± Noct^{x260}): + tĩa- (V^bT) *to cut* ± -tĩkɟ- (221) *again* ± -ribi- (421) *also* ± -nĩ- (261) *at night* > tĩatĩkɟribinĩ- (V_oT) *to also cut (sleep) again at night.*

Grammeme AM^{x270} is manifested by suffix class 270, and has the meaning of time in the morning. It occurs first in Group C position, where it may be followed by grammeme IncorS^{x280}. Example of (+ TCore^{VbT} ± Rep^{x220} ± Asp^{420} ± AM^{x270}): + pi (V_bT) *to eat* ± -tĩkɟ- (221) *again* ± ± -ribi- (421) *also* ± poǫ́- (271) *this morning* > pítĩkɟribipoǫ́- (V_oT) *to also eat again this morning.*

Grammeme IncorS^{x280} is manifested by suffix class 280, and has the meaning of incorporated subject, *the others*. Because of semantic restrictions, it occurs in Transitive (or Intransitive) Base of Principal Transitive (or Intransitive) Verb of Uttereme No. 1 (or Uttereme No. 4 for Intransitive Verb) only when the modal word is third person (and when Margin of Principal Verb is third person, cf. **2.2.2.1.1**). It occurs in Group C position, where it may be preceded by grammeme AM^{x270}, or may be followed by grammeme Hab^{x290}. Example of (+ TCore^{VbT} ± Dir^{x130} ± AM^{x270} ± IncorS^{x280}): + bi- (V_bT) *to get* ± -ro- (131) *up* ± -poǫ́- (271) *this morning* ± -kạ- (281) *the others* > bíropoǫ́kạ- (V_oT) *the others picked up this morning.*

Grammeme Hab^{x290} is manifested by suffix class 290, and expresses habituality or continuation in past time. It occurs in Group C position where it may be preceded by grammeme IncorS^{x280}. It is compatible with only certain margin forms, viz., principal margin allohypergrams of present third and non-third persons. Example of (+ TCore^{VbT} ± Dir^{x130} ± IncorS^{x280} ± Hab^{x290}): + činą́- (V_bT) *to throw out* ± -pa- (132) *down* ± -kạ- (281) *the others* ± -ki- (291) *habitual, continuative* > činą́pakąki- (V_oT) *the others used to throw out down.*

The Suf...$^{y\cdots}$ class of grammemes has the meaning of transitive or transitivizing modification of the core; it is manifested by the suffix hyperclass y. In Transitive Base, any one of the Suf...$^{y\cdots}$ grammemes occurs obligatorily following Intransitive Core (cf. Chart 2), or either type of Core plus a grammeme of the Suf...$^{x\cdots}$ class—further Suf...$^{y\cdots}$ grammemes are then optional; following Transitive Core, grammemes of the Suf...$^{y\cdots}$ class are optional (cf. Chart 1). In Intransitive Base, grammemes of the Suf...$^{y\cdots}$ class may follow either Transitive or Intransitive Core, if they are in turn followed by a grammeme of the Suf...$^{x\cdots}$ class; such combinations will be discussed in **3.2.**

The individual grammemes of the Suf...$^{y\cdots}$ class are given below in combination with Transitive Core and Intransitive Core, resulting in Transitive Base in both cases:

Grammeme Regr^{y140T} is regressive in meaning, and is manifested by suffix class 140T. It occurs in Group A position as indicated in Chart 3a, and may be followed by grammemes of Groups B and C. Example of (+ TCore^{VbT} ± Regr^{y140T} ± Caus^{y160}): + siną́- (V_bT) *to think* ± -na- (141) *oppositely* ± -mi- (161) *causative* > sinạnami- (V_oT) *to cause to think differently*; (+ ICore^{VbI} + Caus^{y160}): + cɔ́- (V_bI) *to sit* +

Chart 3c: Distribution of Group B Suffixes

±Incep^{x140}	±Caus^{y160}	±Ben^{y170}	±Recip^{x180}	±Aux^{y190}	±Abil^{x210}	±Asp^{420}	±Rep^{x220}	±First^{x230}	±Amb^{x240}	±Exten^{x250}	±Noct^{x260}
×							<->		✓		
	×	✓	<->	✓	✓	✓	<->	✓	✓	✓	✓
		×	✓	<->	✓	✓	<->	<->	<->	✓	✓
			×	<->	✓	✓	✓	✓	✓	✓	✓
				×	<->	✓	<->	✓	✓	✓	✓
					×	✓	<->		✓	✓	✓
						×	<->	✓	<->	<->	✓
							×	✓	<->	<->	<->
								×	✓	✓	<->
									×	✓	✓
										×	✓

-na- (141) *oppositely*, > cɔɔna- (V_cT) *to set upright.*

Grammeme Caus^{y160} is causative in meaning, and is manifested by suffix class 160. It occurs in Group B position where it may be followed by grammemes Ben^{y170}, Aux^{y190}, Abil^{x210}, Asp^{420}, First^{x230}, Amb^{x240}, Exten^{x250}, Noct^{x250}; it may be preceded or followed by Recip^{x180}, Rep^{x220}. Example of (+ TCore^{VbT} ± Caus^{y160} ± Exten^{x250}): + ʔoną́- (V_bT) *to know* ± -mi- (161) *causative* ± -bai- (171) *continuative* > ʔonámibai- (V_cT) *to have been teaching*; (+ ICore^{VbI} + Caus^{y160}): + naši- (V_bI) *to bathe* + -mi- (161) *causative* > našimi- (V_cT) *to bathe (someone).*

Grammeme Ben^{y170} is benefactive in meaning, and is manifested by suffix class 170. It occurs in Group B position, where it may be preceded by Caus^{y160}; it may be preceded or followed by Aux^{y190}, Rep^{x220}, First^{x230}, Amb^{x240}; it may be followed by Recip^{x180}, Abil^{x210}, Asp^{420}, Exten^{x250}, Noct^{x260}. Example of (+ TCore ^{VbT} ± Ben^{y170} ± Rep^{x220})[18]: + ʔa- (V_bT) *to do, make* ± -ʂǫ- (171) *benefactive* ± -tīkʃ- (221) *again* > ʔašǫtīkʃ- or ʔatīkʃʂǫ- (V_cT) *to do again for (someone)*; {+(+ ICore^{VbI} + Ben^{y170}) ± Rep^{x220}}: {+[+ abá- (V_bI) *to run* + -ʂǫ- (171) *benefactive*]± -tīkʃ- (221) *again*} > abáʂǫtīkʃ- (V_cT) *to run again for (someone).*

Grammeme Aux^{y190} has the meaning of helping or accompanying; it is manifested by Suffix Class 190. It may be preceded by grammemes Caus^{y160}; it may be preceded or followed by grammemes Ben^{y170}, Recip^{x180}, Abil^{x210}, Rep^{x220}; it may be followed by grammemes Asp^{420}, First^{x230}, Amb^{x240}, Exten^{x250}, Noct^{x260}. Example of (+ TCore^{VbT} ± Aux^{y190} ± Asp^{420}): + ʔa- (V_bT) *to do, make* ± -kį- (191) *help to* ± -ribi- (421) *also* > ʔakįribi- (V_cT) *to also help to do*; {+ (+ ICore^{VbI} + Aux^{y190}) ± Asp^{420} ± Rep^{x220}}: {+ [+ ni- (V_bI) *to walk* + -kį- (191) *to help*] ± -iši- (422) *only* ± -tīkʃ- (221) *again*} > nīkįįšitīkʃ- (V_cT) *to do nothing but accompany (someone) again walking, or again help (someone) walk.*

The Suf...$^{z\cdots}$ class of grammemes has the meaning of intransitive or intransitivizing modification of the core; it is manifested by the suffix hyperclass z. In Transitive Base, grammemes of the Suf...$^{z\cdots}$ class may follow either Transitive or Intransitive Core, if they are in turn followed by a grammeme of the Suf...$^{y\cdots}$ class. In Intransitive Base, any one of the Suf...$^{z\cdots}$ grammemes occurs obligatorily following Transitive Core (cf. Chart 7), or either type of Core plus a grammeme of the Suf...$^{y\cdots}$ class—further Suf...$^{z\cdots}$ grammemes are then optional; following Intransitive Core, grammemes of the Suf...$^{z\cdots}$ class are optional.

The individual grammemes of the Suf...$^{z\cdots}$ class are described below. In Transitive Base, grammemes of the Suf...$^{z\cdots}$ class occur only when followed by at least one grammeme of the Suf...$^{y\cdots}$ class. Such combinations appear in the examples below.

Grammeme Refl^{z120} is manifested by suffix class 120 and is reflexive in meaning. It occurs in Group A position following Transitive Core or Intransitive Core. Example of

[18] The linked arrows indicate that the two grammemes may change positions.

{+ (+ TCore^{V_bT} + Refl^{z120}) + Caus^{y160}}: {+[+ mĩĩ- (V_bT) *to hit* + -aka- (121) *reflexive* + -mi- (161) *causative*} > mĩĩakámi- (V_oT) *to cause (someone) to hit himself.*

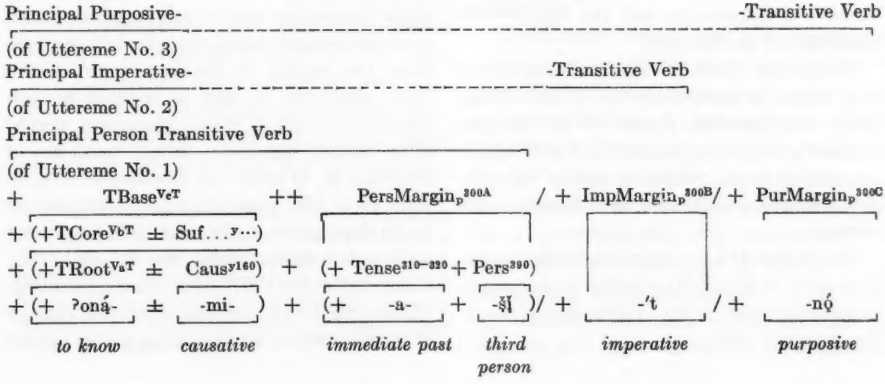
Hypergrammeme ++ Regr^{z140I} is manifested by suffix class 140I, and is regressive and intransitive, in meaning. It occurs in Group A position where it may be preceded by grammeme Refl^{z120}. Example of {+ (+ ICore^{V_bT} ±± Regr^{z140I}) + Caus^{y160}}: {+[+ oį́ (V_bI) *to breathe* ± -nakį́- (143) *oppositely*] + -mi- (161) *causative* > oįnakį́mi- (V_oT) *to cause to breathe oppositely, to revive.*

Grammeme Recip^{z180} is manifested by suffix class 180, and is reciprocal in meaning. It occurs in Group B position where it may be preceded by grammeme Ben^{y170}; it may be preceded or followed by grammemes Caus^{y160}, Aux^{y190}; it may be followed by grammemes Abil^{x210}, Asp^{420}, Rep^{x220}, First^{x230}, Amb^{x240}, Exten^{x250}, Noct^{x260}. Example of {+ [+ (+ TCore^{V_bT} + Recip^{z180}) + Caus^{y160}] ± Rep^{x220}}: {+ [+ (+ mĩĩ- (V_bT) *to hit* + -aną́- (181) *reciprocal*) + -mi- (161) causative] ± -tĩkį́- (221) *again*} > mĩĩaną́mitĩkį́- (V_oT) *to again cause to fight each other.*

2.2.2. Margins of transitive verbs (and of intransitive verbs) constitute two types, principal and subordinate. Principal Margin constitutes part of the principal verb; its position in the principal transitive verb is indicated as Margin$_p$ in Formulas 1, 2, and 3, the fillers of the spots in the respective formulas being the 300A, 300B, and 300C classes of morphemes and hypermorphemes. Subordinate Margin constitutes part of the subordinate verb; its position in the subordinate transitive verb is indicated as Margin$_{st}$ in Formulas 1, 2, and 3, the filler of the spot being the 500t class of morphemes and hypermorphemes. The margins of principal verbs will be discussed in **2.2.2.1** with special reference to transitive verbs; the margins of subordinate verbs will then be treated in **2.2.2.2**, again with special reference to transitive verbs.

2.2.2.1 The margins of principal transitive verbs constitute three classes according to the uttereme types in which they occur. They are represented in Formulas 1, 2, and 3 as ++ PersMargin$_p^{300A}$, ImpMargin$_p^{300B}$, and PurMargin$_p^{300C}$. Chart 4 indicates in simple form the relationship between these margins and the transitive base in the principal verbs of Utteremes Nos. 1, 2, and 3. The examples in Chart 4 illustrate the three types of principal margins combining with Transitive Base: ʔonąmiašį́ *he or they taught just now*; ʔonąmít *teach*; ʔonąminǫ́ *going to teach.*

Chart 4: Principal Verb Margins


Principal Purposive- -Transitive Verb
(of Uttereme No. 3)
Principal Imperative- -Transitive Verb
(of Uttereme No. 2)
Principal Person Transitive Verb
(of Uttereme No. 1)
+ TBase^{V_eT} ++ PersMargin$_p^{300A}$ / + ImpMargin$_p^{300B}$ / + PurMargin$_p^{300C}$
+ (+TCore^{V_bT} ± Suf...$^{y\cdots}$)
+ (+TRoot^{V_aT} ± Caus^{y160}) + (+ Tense$^{310-320}$ + Pers^{390})
+ (+ ʔonąʹ- ± -mi-) + (+ -a- + -šį́)/ + -ʹt / + -nǫ́
to know causative immediate past third person imperative purposive

2.2.2.1.1. The person-marking margin (as in Uttereme No. 1) will first be described. Chart 1 illustrates the position of the ++ $PersMargin_p^{300A}$ (= + $Tense^{310-320}$ + $Pers^{390}$) hypergrammeme in the principal transitive verb of Uttereme No. 1. This hypergrammeme is obligatory in Uttereme No. 1 and also in principal intransitive verb of Uttereme No. 4 (see Formula 4, **2.2.2.2**). It combines with the $TBase^{V_cT}$ grammeme in a hypergrammeme which is manifested by a principal transitive verb; it also combines with the $IBase^{V_cI}$ grammeme in a hypergrammeme which is manifested by a principal intransitive verb. It has the meaning of tense and person, and may include the further meaning of negation. It is manifested by the 300A class of hypermorphemes. The 300A class of hypermorphemes contains two alloclasses, $300A_{1\text{-}2}$ indicating association with non-third person, and $300A_3$ indicating association with third person. Alloclass $300A_3$ will be described first, as to morpheme and grammeme content, then Alloclass $300A_{1\text{-}2}$ will be described.

2.2.2.1.1.1. Alloclass $300A_3$ represents the alloclass of hypermorphemes which manifests the margin hypergrammeme (+ $Tense^{310-320}$ + $Pers^{390}$) when the modal grammeme has third person suffixation (as in the example for Uttereme No. 1, **2.1**). We represent the allohypergram which it manifests as (+ $Tense^{310-320}$ + $3pers^{390a-390b}$).

The morpheme classes which manifest the $Tense^{310-320}$ grammeme and the $3pers^{390a-390b}$ allogram are as follows:

Morpheme Class 310 has the meaning of past tense. It comprises one of the classes which manifest the $Tense^{310-320}$ grammeme; it also manifests the grammeme $Past^{310}$ which may occur as an expansion within subordinate margins. It contains the following morphemes:

Morpheme 311, -a- *tense marker for immediate past*: + bĭ- (V_cT) *to bring* + -a- > bĭa- *have just brought*; + ki- (V_cI) *to say* + -a- > kia- *have just said*.

Morpheme 312, -o̧o̧- *tense marker for past of yesterday*: + bĭ- (as above) + -o̧o̧- > bĭo̧o̧- *brought yesterday*; + ʔi- (V_cI) *to be* + -o̧o̧- > ʔio̧o̧- *was yesterday*.

Morpheme 313, -ĭšą̊ą- *tense marker for time before yesterday*: + bĭ- (*as above*) + -ĭšą̊ą- > bĭĭšą̊ą- *brought before yesterday*; + abá- (V_cI) *to run* + -ĭšą̊ą- > abáĭšą̊ą- *ran before yesterday*.

Morpheme 314, -akĭ- *tense marker for time long ago*: bĭ- (as above) + -akĭ- > bĭakĭ- *brought long ago*; + obó- (V_cI) *to come down* + akĭ- > obóakĭ- *came down long ago*.

Morpheme Class 320 has the meaning of present tense. It comprises one of the classes which manifest the $Tense^{310-320}$ grammeme; it also manifests the grammeme $Present^{320}$ which may occur within subordinate margins. It contains the following morpheme:

Morpheme 321, -į ~ (-nį ~ -tį accompanied by shift of stress under certain conditions from the ultimate to the penult of the accumulated preceders) *tense marker for present or contemporary time*. Each allomorph has an unnasalized alternant (-i, -ni, -ti) which occurs word final in subordinate margins (cf. **2.2.2.2**) or non-word-final in principal and subordinate margins. Allomorphs -nį and -ni occur following morphemes containing a nasalized vowel; when the preceding unit contains two vowels with stress on the second vowel, suffix -ni is accompanied by shift of stress from the second to the first vowel of the preceding unit. When allomorphs -tį and -ti occur following units containing two vowels in which stress is on the second vowel, there is shift of stress from the second to the first vowel of the unit; allomorph -tį and -ti without accompanying change of stress placement occurs after certain one-vowel morphemes: ko- *to eat fruit*; ši- *to smell*; pĭ- *to undress*; k^wa- *to hear*; rĭ- *to kill, knock down*; šo- *to command*; to- *to impregnate*; suffix -aka- (121) *reflexive*; suffix mĭ- *reflexive*; suffix -bo- ∞ -pa- (132) *down*; suffix -nĭ- (261) *at or during the night*. Allomorph -į (without accompanying change of stress position on preceding units) occurs

in other cases. Examples of suffix 221: + ʔapá- (V_cT) *to plant* + -tį ʔapatį *plant*; + $k^wą$- (V_cI) *to go* + -nį > $k^wąnį$ *go*.

Morpheme Class 390 has the meaning of person. It contains two alloclasses, 390a and 390b. Alloclass 390a manifests the $3pers^{390a\text{-}390b}$ allogram when combining with the $Tense^{310\text{-}320}$ grammeme as manifested by morpheme class 310. Alloclass 390b manifests the $3pers^{390a\text{-}390b}$ allogram when combining with the $Tense^{310\text{-}320}$ grammeme as manifested by the morpheme class 320.

Alloclass 390a is composed of two morphemes:

Morpheme 391, -ṣa *third person indicator in narrative speech*: + ʔapá- (V_cT) *to plant* + -akī- (314) *long ago* + -ṣa > ʔapáakīṣa *he or they planted long ago*; + ki- (V_cI) *to say* + akī- (314) *long ago* + -ṣa > kiakīṣa *he or they said long ago*.

Morpheme 392, -ṣį[19] *third person indicator in non-narrative speech*: + ʔa- (V_cT) *to do, make* + -išą́ą (313) *time before yesterday* + -ṣį > ʔaišą́ąṣį *he or they did before yesterday*; + abá- (V_cI) *to run* + išą́ą (313) *time before yesterday* + -ṣį > abáišą́ąṣį *he or they ran before yesterday*.

Alloclass 390b is comprised of two morphemes and a hypermorpheme:

Morpheme 393, high tone (marked by an inverted caret) *third person*: + ʔapá- (V_cT) *to plant* + -tį (321) *present* + high tone (393) > apatį *he, they plant*; + $k^wą$- (V_cI) *to go* + -nį (321) *present* + high tone (393) > $k^wąnį$ *he, they go*.

Hypermorpheme 394, -mį *third person negative* is considered a fusion of the negative morpheme (which occurs as -ma, 411, Fn21) and the third-person morpheme 393: + ʔapá- (V_cT) *to plant* + -ti (321) present + -mį > ʔapatimį *he or they do not plant*; + $k^wą$- (V_cI) *to go* + -ni (321) *present* + mį > $k^wąnimį$ *he or they do not go*.

Morpheme 395, -a[19] *continuative in third person*. Examples: + ʔapá- (as above) + -ti (321) *present* + -a > ʔapatia *he or they are planting*; + $k^wą$- (as above) + -ni (321) *present* + -a > $k^wąnia$ *he or they are going*.

The grammemes and hypergrammemes within alloclass $300A_3$ will now be presented.

Grammeme $Tense^{310\text{-}320}$, like the morphemes manifesting it, has the meaning of tense; it combines with the allogram $3pers^{390a\text{-}390b}$ in a hypergrammeme whose manifestation is a hypermorpheme of alloclass $300A_3$. It also occurs in a hypergrammeme whose manifestation is a hypermorpheme of alloclass $300A_{1\text{-}2}$ (cf. **2.2.2.1.1.2**). The $Tense^{310\text{-}320}$ grammeme has two allograms: allogram $past\text{-}tense^{310}$, meaning past, manifested by morpheme class 310 and combining with allogram $3pers^{390a}$ in a hyperallogram (+ past - $tense^{310}$ + $3pers^{390a}$) whose manifestation is a $300A_3$ hypermorpheme, as in {+ ʔaro- (V_cT) *to cook* + [+ -a (311) *immediate past* + -ṣį (391) *third person*]} > ʔaroaṣį *he or they just cooked*; allogram $pres\text{-}tense^{320}$, meaning present, manifested by morpheme class 320 and combining with allogram $3pers^{390b}$ in a hyperallogram (+ $pres\text{-}tense^{320}$ + $3pers^{390b}$) whose manifestation is a $300A_3$ hypermorpheme, as in {+ ʔaro- (as above) + [+ -i (321) *present* + -mį (394) *third person negative*]} > ʔaroimį *he or they do not cook*.

Grammeme $Pers^{390}$ has the meaning of person; it combines with the $Tense^{310\text{-}320}$ grammeme in the hypergrammeme whose manifestation is a hypermorpheme of alloclass $300A_3$. It has two allograms: allogram $3pers^{390a}$, manifested by alloclass 390a, and combining with the $past\text{-}tense^{310}$ allogram in a hyperallogram (+ $past\text{-}tense^{310}$ + 3 $pers^{390a}$), as illustrated in the preceding paragraph; allogram $3pers^{390b}$, manifested by alloclass 390b, and combining with the $pres\text{-}tense^{320}$ allogram in a hyperallogram

[19] -ṣį might be considered a hypermorpheme (cf. hypermorpheme 394 below) in which there is a fusion of high-tone morpheme 393 with an aspect element; one might expect -ṣa (391) and -a (395) to be only aspective, however they are not used with first and second persons in the constructions under discussion.

(+ pres-tense[320] + 3pers[390b]), also illustrated above.

Allohypergram (+ Tense[310-320] + 3pers[390a-390b]) is past or present, third person in meaning, is manifested by hypermorphemes of alloclass $300A_3$, and is obligatory in the principal verb of Uttereme No. 1 when the modal word is third person. An example of the allohypergram in combination with $TBase^{V_cT}$ grammeme: {+ ʔašą́- (V_cT) *to fish with poison plant pulp* + [+ -nį (321) *present* + high tone (393) *third person*]} > ʔašą́nį́, as in the following example of Uttereme No. 1: kaa ʔašą́nį́ *he fishes, they fish, with poison plant pulp* (< ka- *mode*, -a *third person*, etc.).

2.2.2.1.1.2. Alloclass $300A_{1-2}$ represents the alloclass of fused or partially fused hypermorphemes which manifest the margin hypergrammeme (+ Tense[310-320] + Pers[390a-390b]) when the modal grammeme has first and second person suffixation.[20] The fused hypermorphemes of alloclass $300A_{1-2}$ are homophonous with the morphemes which manifest the Tense[310-320] grammeme included in the allohypergram whose manifestation is alloclass $300A_3$. However, the forms here contain, as well as tense meaning, the meaning of non-third person (for alloclass $300A_3$ we saw in the preceding section that person meaning is conveyed by further suffixation). We have here, then, an alloclass of fused hypermorphemes which are considered a fusion of two morphemes whose meanings are tense and non-third person. The allohypergram which the alloclass manifests might be represented as (+ Tense - and - Non - third - Person$^{300A_{1-2}}$). The members of alloclass $300A_{1-2}$ are presented below, with examples in combination with Transitive Base.

[20] The following is an example of unexpanded Uttereme No. 1 ++ $PersModal^{P_1}$ + (+$TBase^{V_cT}$ ++ $PersMargin_p^{300A}$), of **2.1**, when the modal grammeme has first person suffixation and there is a corresponding distinctive manifestation of the verb margin: kana ʔapáakī *I planted long ago* (< ka *modal*, -na *first person;* ʔa- *to do, make*, -pa- *down*, -akī *long ago, non-third person*).

Fused Hypermorpheme 311 + 390, -a *immediate past, non-third person*: + pi- (V_cT) *to eat* + -a (311 + 390) > pia *I, we, you have just eaten.*

Fused Hypermorpheme 312 + 390, -o̧o̧ *past of yesterday, non-third person*: + pi- (as above) + -o̧o̧ (312 + 390) > pio̧o̧ *I, we, you ate yesterday.*

Fused Hypermorpheme 313 + 390, -išą́ą *time before yesterday, non-third person*: + pi- (as above) + -išą́ą (313 + 390) > piišą́ą *I, we, you ate before yesterday.*

Fused Hypermorpheme 314 + 390, -akī *long ago, non-third person*: + pi- (as above) + -akī (314 + 390) > piakī *I, we, you ate long ago.*

Fused Hypermorpheme 321 + 390, -į ~ (-nį -tį, accompanied by change of stress position in the preceding morpheme according to situations explained for morpheme 321 in **2.2.2.1.1.1**) *present, non-third person*. It forms a subclass which manifests the ++ Pres[321+390] hypergrammeme, noted below. + pi- (as above) + -į (321 + 390) > pį́ *I, we, you eat.*

Partially fused Hypermorpheme 322, which consists of fused hypermorpheme 321 + 390 plus non-fused morpheme -ma (411) *negative*[21] and which occurs then as -ima ~ (-nima ~ -tima, with change of stress position on the preceding morpheme as indicated above for morpheme 321); this hypermorpheme is a manifestation of the expanded hypergrammeme (++ Pres[321+390] ± Neg[410]). Its meaning is *present negative, non-third person*. Example: + pi- (V_cT) *to eat* + -ima (322) > piima *I, we, you do not eat.*

The above morphemes and morpheme sequences manifest the following grammemic constructions:

Grammeme Neg[410] is manifested by morpheme class 410, and is negative in meaning. It occurs as an expansion of the

[21] Morpheme 411, -ma *negative*, is a unique member of Suffix Class 410; it manifests the grammeme Neg[410], whose occurrences are described in the text. (The suggestion of -ma as a clitic in the previous Cashibo article is ignored in this paper.)

++ $Pres^{321+390}$ hypergrammeme in an expanded hypergrammeme (++ $Pres^{321+390}$ ± Neg^{410}) which is present, non-third person, and negative in meaning, is manifested by a $300A_{1-2}$ hypermorpheme (numbered 322 above), and is included in a higher-layer hypergrammeme whose manifestation is a principal transitive verb: {+ $TBase^{V_cT}$ + (++ $Pres^{321+390}$ + Neg^{410})}, as in {+ ʔapá- (V_cT) *to plant* + [+ -ti (321 + 390) *present, non-third person* ± -ma (411) *negative*]} > ʔapatima *I, we, you do not plant.* Grammeme Neg^{410} also occurs in certain subordinate verb margins (**2.2.2.2**), and in certain noun and attributive words; it occurs in a fused hypergrammeme whose manifestation is a third person negative suffix hypermorpheme, 394 (cf. **2.2.2.1.1.1**).

Allohypergram $Tense\text{-}and\text{-}Nonthird\text{-}Person^{300A_{1-2}}$ for non-third person parallels Allohypergram (+ $Tense^{310-320}$ + $3pers^{390a-390b}$) for third person, both of which are allohypergrams of hypergrammeme (+ $Tense^{310-320}$ + $Pers^{390}$). Allohypergram $Tense\text{-}and\text{-}Non\text{-}third\text{-}Person^{300A_{1-2}}$ has the meaning of past or present tense and non-third person; it is manifested by hypermorphemes of Alloclass $300A_{1-2}$. It is obligatory in the principal verb of Uttereme No. 1 when the modal word is first or second person. An example of the allohypergram in combination with the $TBase^{V_cT}$ grammeme: {+ šoi- (V_cT) *to bake over coals* + -į (321 + 390) *present tense, non-third person*} > šoiį *I, we, you bake over coals.*

2.2.2.1.2. The imperative margin occurs in principal transitive verbs of Uttereme No. 2. It is also obligatory in principal intransitive verbs of Uttereme No. 5 (cf. **3.2**). Formula 2 indicates the position of the $ImpMargin_p^{300B}$ grammeme in the principal transitive verb of Uttereme No. 2. The $ImpMargin_p^{300B}$ grammeme combines with the $TBase^{V_cT}$ grammeme in a hypergrammeme whose manifestation is a principal intransitive verb. It has the meaning of imperative. It is manifested by the 300B class of morphemes.

The 300B morpheme class includes one unique morpheme:

Morpheme 331, stress + (-t ~ -ʔ[22]) *imperative*; the vowel of the final syllable of the verb base is stressed. Morpheme 331 has two allomorphs: complex allomorph (+ stress of base-final vowel + -t which fluctuates freely with ʔ) which follows final oral vowel of the preceding morpheme; allomorph of stress which accompanies a base-final syllable ending in consonant or nasalized vowel. Examples of morpheme 331: {+ ʔaro- (V_cT) *to cook* + [+ stress + -t] (331)} > ʔárót *cook!*; {+ naši- (V_cI) *to bathe* + [+ stress + -t] (331)} > nášít *bathe!*

Grammeme $ImpMargin_p^{300B}$, manifested by the 300B class of morphemes, combining with the $TBase^{V_cT}$ grammeme is seen as follows: (+ $TBase^{V_cT}$ + $ImpMargin_p^{300B}$), as in {+ mïníɔ- (V_cT) *to make tidy* + [+ stress + -t] (331) *imperative*} > mïníɔ́t *tidy!*

2.2.2.1.3. The purposive margin occurs in principal transitive verbs of Uttereme No. 3. It is also obligatory in principal intransitive verbs of Uttereme No. 6 (cf. **3.2**). Formula 2 indicates the position of the $PurMargin_p^{300C}$ grammeme in the principal transitive verb of Uttereme No. 3. It combines with the $TBase^{V_cT}$ grammeme in a hypergrammeme whose manifestation is a principal transitive verb, and with the $IBase^{V_cI}$ grammeme in a hypergrammeme whose manifestation is a principal intransitive verb. It has the meaning of future purposive. It is manifested by the 300C morpheme class.

The 300C morpheme class is comprised of a morpheme of decade 340:

Morpheme 341, -no- ~ -nǫ́ *purposive.* Allomorph -nǫ́ occurs in word final position, allomorph -no- occurs word medial. Examples: + baritą- (V_cT) *to go and look for* + -nǫ́ (341) > báritąnǫ́ *going to go and*

[22] This use of ʔ was omitted in the previous Cashibo article.

look for; + cɔ́- (V_eI) *to sit* + -nǫ́ (341) > cɔ́nǫ́ *going to sit*.

The 300C morpheme class manifests the $PurMargin_p^{300C}$ grammeme in principal transitive (and intransitive) verbs. Synonymously, as class 340, it manifests the grammeme Pur^{340} with the meaning of purposive in certain subordinate margins, and the grammeme pur^{340} as an expansion in certain other subordinate margins (cf. **2.2.2.2.1.2** and **2.2.2.2.2.2**).

Grammeme $PurMargin_p^{300C}$, manifested by the 300C morpheme class, combining with the $TBase^{V_eT}$ grammeme is seen as follows: (+ $TBase^{V_eT}$ + $PurMargin_p^{300C}$), as in + ʔátīkʃ- (W_eT) *to do again* + -nǫ́ (341) *purposive* > ʔátīkʃnǫ́ *going to cook, will cook*.

2.2.2.2. The margins (500) of subordinate verbs were first introduced in the expanded form of Uttereme No. 1 (in **2.1**; cf. Formula 1) and were seen again in expanded Uttereme No. 2 (Formula 2) and expanded Uttereme No. 3 (Formula 3). Formula 1 was sufficient at the point in which it was presented to introduce principal and subordinate verbs as two types constituting a hyperclass of words VT. It was noted that there is a correlation of the margin of the subordinate verb with the transitive base of the principal verb, the tie being symbolized by a dotted line. Similarly there is a tie between the margin of the subordinate verb and the base of an intransitive principal verb. So it now becomes necessary to introduce further uttereme types, viz., expanded Uttereme No. 4, expanded Uttereme No. 5, and expanded Uttereme No. 6, in order to present this tie, in which the subordinate verb, though transitive, correlates with an intransitive principal verb.

In minimum form, Uttereme No. 4 is symbolized ++ $PersModal^{P_1}$ + (+ $IBase^{V_eI}$ ++ $PMargin_p^{300A}$). It has the meaning of state, or action not exerted toward a goal. Example: kaa bīroakīšį́ *he, they stayed long ago* (< ka *mode*, -a *third person*; bīro- *to stay*, -akī- *long ago*, -šį́ *third person*). The expansion of Uttereme No. 4 to be considered here is given in Formula 4. The expansion of Uttereme No. 4 (Formula 4) is illustrated in the following: nɔɔ činą́-patą́kīš kaa bīroakīšį́ *having vanquished the enemy, they (or he) stayed long ago* (< nɔɔ *enemy*; činą́- *to throw out*, -pa- *down*, -tąkī- *completive*, -š *appositive, intransitive tie*; ka- *mode*, -a *third person*; bīro- *to stay*, -akī- *long ago*, -šį́ *third person*).

Uttereme No. 5 in minimum form is symbolized (+ $IBase^{V_eI}$ + $ImpMargin_p^{300B}$), as in nášít *bathe!* (< naši- *to bathe*, -'t *imperative*). It has the meaning of imperative, the state or action incapable of exertion toward a goal. Uttereme No. 5 is shown in an expanded form in Formula 5. This expansion is illustrated in the following: nami pinóš ka $k^wą́$ *go before eating meat* (< nami *meat*, pi- *to eat*, -no- *purposive*, -š *appositive in correlation with an intransitive principal verb*; ka *mode*; $k^wą$- *to go*, ' imperative).

Uttereme No. 6 in minimum form is symbolized (+ $IBase^{V_eI}$ + Pur-

Formula 4: A Typical Expansion of Uttereme No. 4

$$\pm \{\pm\ Obj^N + (+\ TBase^{V_eT} + Margin_{si}^{500i})\} + \{++\ PersModal^{P_1} + IPred_p(+\ IBase^{V_eI} ++ PersMargin_p^{300A})\}$$

Formula 5: A Typical Expansion of Uttereme No. 5

$$\pm \{\pm\ Obj^N + TPred_s(+\ TBase^{V_eT} + Margin_{si}^{500i})\} + \{\pm\ Modal^P + IPred_p(+\ IBase^{V_eI} + ImpMargin_p^{300B})\}$$

$Margin_p^{300C}$), as in cɔ́nǫ́ *going to sit* (< cɔ́- *to sit*, -nǫ́ *purposive*). It has the meaning of purpose, the state or action being incapable of a goal. Uttereme No. 6 is shown in an expanded form in Formula 6. This expansion is illustrated in the following: kirika ʔatą́kīš kʷą́inǫ́ *having studied, (I'm) going to play* (< kirika *book, paper*; ʔa- *to do*, -tąkī- *completive*, -š *appositive in correlation with an intransitive principal verb*; kʷai- *to play*, -nǫ́ *purposive*).

In this section we are not concerned with the intransitive principal verbs, nor with intransitive verbs in subordinate position; intransitive verbs are discussed in **3.** We are, however, concerned with subordinate transitive verbs whether tied to principal transitive verbs as in expanded Utteremes Nos. 1, 2, and 3, or to principal intransitive verbs as in expanded Utteremes Nos. 4, 5, 6.

Subordinate transitive verbs comprise a hyperclass consisting of two classes of hypermorphemes: those manifesting the (+ $TBase^{V_cT}$ + $Margin_{st}^{500t}$) hypergrammeme, tied to a principal transitive verb as in expanded Utteremes Nos. 1, 2, and 3; those manifesting the (+ $TBase^{V_cT}$ + $Margin_{si}^{500i}$) hypergrammeme, tied to a principal intransitive verb as in expanded Utteremes Nos. 4, 5, and 6.

The position and content (500t) of Margin in Subordinate Verb which is tied to a principal transitive verb is shown in Chart 5. The position and content of Margin in Subordinate Verb which is tied to a principal intransitive verb is parallel, and is also shown.

2.2.2.2.1. We turn now to details elaborating the structure of the margins of Subordinate Verb when the principal verb is transitive.

As indicated in Chart 5, the $Margin_{st}^{500t}$ grammeme is obligatory in Subordinate Transitive Verb (and in Subordinate Intransitive Verb) when the principal verb is transitive; it unites with the $TBase^{V_cT}$ grammeme in a hypergrammeme manifested by a subordinate transitive verb, and with the $IBase^{V_cI}$ grammeme in a hypergrammeme manifested by a subordinate intransitive verb. It has the functional meaning of relating the state or action of the subordinate verb with that of the principal verb as to time and persons involved, and may include the further meaning of negation. It is manifested by the 500t class of morphemes and hypermorphemes.

2.2.2.2.1.1. The 500t class (of classes) of morphemes and hypermorphemes manifests grammeme $Margin_{st}^{500t}$; it has the meaning of subordination and relation in time and person, of the state or action of the subordinate verb with that of a principal transitive verb. It contains two alloclasses: those whose subject has the same referent as does the subject of the principal verb (Alloclass 500t-SS), and those whose subject has a different referent from that of the subject of the principal verb (Alloclass 500t-DS). The constituent morphemes of Alloclass 500t-SS are given first, as follows:

Morpheme Class 510 manifests the grammeme $Co\text{-}incid^{510}$. It gives to the subordinate verb the meaning of subordination to the principal verb, in time contemporary with that of the principal verb. It is comprised of the following morphemes:

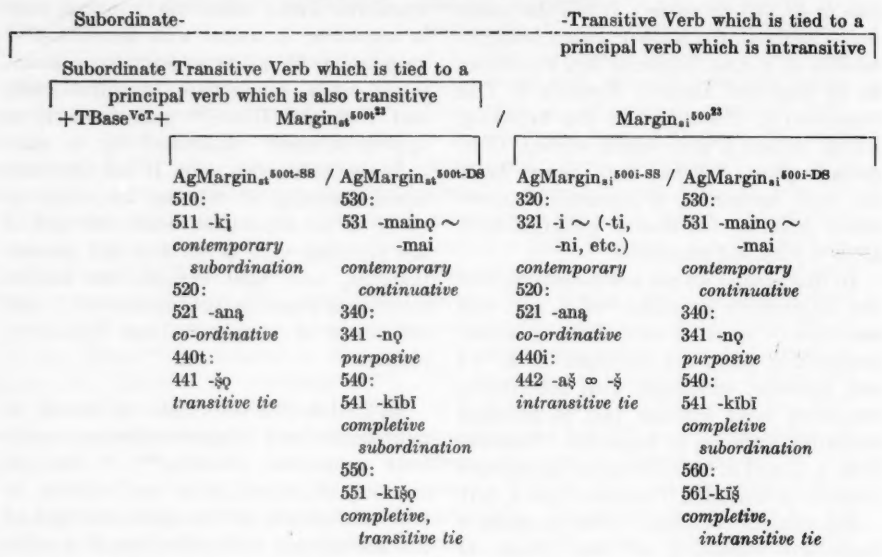
Morpheme 511, -kį contemporary subordination correlating the subordinate verb with a principal transitive verb: + ʔaro- (V_cT) ***to cook*** + -kį- > ʔarokį *cooking*; + ʔakaną́- (V_cI) *to fight each other* + -kį > ʔakanąkį *fighting each other*.

Morpheme Class 520 manifests gram-

Formula 6: A Typical Expansion of Uttereme No. 6

$$\pm \{\pm Obj^N + TPred_s(+ TBase^{V_cT} + Margin_{si}^{500i})\} + IPred_p(+ IBase^{V_cI} + PurMargin_p^{300C})$$

Chart 5: Subordinate Verb Margins



meme Co-ord[520] and is co-ordinating in function; its unique member—

Morpheme 361, -aną *conjunctive*, showing co-ordination as to time and subject, between the subordinate and principal verbs: + isiši- (V_cT) *to only see* + -aną > isišianą *only sees and*; + bana- (V_cI) + -aną > banaaną *talks and*.

Morpheme Class 440t manifests the grammeme Appos[440t], and is subordinative, in apposition with the subject of a transitive principal verb; its unique member—

Morpheme 441, -ṣǫ indicates appositive relation in correlation with a transitive principal verb: + ʔaro- (V_cT) *to cook* + -ṣǫ > ʔaroṣǫ *cooking*; + $k^wą$- (V_cI) *to go* + -ṣǫ > $k^wąṣǫ$ *going*.

Morpheme Class 430 qualifies the subordination expressed in the preceding subordinative morphemes; it manifests grammeme Alt[430] in expanded grammemes whose manifestations form hypermorphemes of Alloclass 500t-SS. It contains the unique morpheme—

Morpheme 431, -bi *alternative or condition*: + k^wa- (V_cT) *to hear* [+ -kį (511) *contemporary subordinative* ± -bi] > $k^wakįbi$ *hearing but*; + $k^wą$- (V_cI) *to go* [+ -kį (511) ± -bi] > $k^wąkįbi$ *going but*.

Morpheme Classes 410 (described in Fn21), 420 (described in **2.2.1.3**), Classes 310 and 340 (described in **2.2.2.1.1**) and Class 396 described immediately below also manifest grammemes included in expanded grammemes whose manifestations are hypermorphemes of Alloclass 500t-SS.

Morpheme Class 396 contains the unique morpheme -tąkī- (396) *completive*; it manifests grammeme compl[396] which is included in an expanded grammeme whose manifesta-

[23] Only morphologically-simple members of this class are represented on the chart. For the morphologically-complex members, see the hypermorphemic manifestations of the respective expanded grammemes, **2.2.2.2.1.2** and **2.2.2.2.2.2**. The reason for the separate decade classes attached to the single morphemes above is related to the fact that the hypermorphemes of which they are the head have different structures with different sets of optional parts. Later it may be necessary for indicating syntactic relations with other sentences or parts of the same sentence to make further emic subdivisions of this class, but these are not necessary at this point of the analysis.

tion is a hypermorpheme of Alloclass 500t-SS: + ɓi (V_cT) *to get, receive* + [± -tąkĭ- (396) *completive* + -šǫ (441) *appositive correlation with transitive principal verb*] > bitąkĭšǫ *after having received;* + ʔiro- (V_cI) *to go ashore* + [± -tąkĭ- + -šǫ] > ʔirotąkĭšǫ *after having gone ashore.*

The constituent morphemes of Alloclass 500t-DS are as follows: Morpheme Class 530 manifests grammeme Contemp[530]; it indicates subordination continuative in time contemporary with that of the principal verb whose subject is different from that of the subordinate verb. It contains the unique morpheme—

Morpheme 531, -mainǫ∼-mai *while* (with the meaning as given for the class above). Allomorph -mai occurs as a free variant utterance final in the closing speech of a dialogue. Examples: + ʔa- (V_cT) *to do, make* + -mainǫ > ʔamainǫ *while...does;* + cɔ́- (V_cI) *to sit* + -mainǫ > cɔ́mainǫ *while... sits.*

Morpheme Class 340, described in **2.2.2.1.3,** is also a member of Alloclass 500t-DS in its manifestation of the grammeme Pur[340]; its subject is different from that of the principal verb: + pi- (V_cT) *to eat* + -nǫ́ (341) *purposive* > pinǫ́ *in order to eat later;* + $k^wą$- (V_cI) *to go* + -nǫ́ > $k^wanǫ́$ *in order to go later.*

Hypermorpheme Class 540 has the meaning of subordination to a principal verb in time preceding or simultaneous with that of the principal verb, with subject referent different from that of the principal verb. It manifests the hypergrammeme (+ $Compl^{-kI-}$ + $Acc^{-bI/-bĭtą}$)[24]. Its unique member is—

[24] The grammeme $Compl^{-kĭ-}$ was seen in the hypergrammeme whose manifestations are suffixes of Class 140I. Grammeme $Acc^{-bĭ/-bĭtą}$ occurs in noun words, and in this unique verb construction. It has the meaning of *accompanying,* or *along with,* as does the morpheme which manifests it. The form -bĭtą is possibly a hypermorpheme, morpheme -tą implying *immediately;* this interpretation, however, is not fully established, so -bĭtą is left here as simply an allomorphic alternant with -bĭ.

Hypermorpheme 541, -kĭbĭ/ -kĭbĭtą *when, or after having.* Examples: + nĭa- (V_cT) *to tie* + -kĭbĭtą > nĭakĭbĭtą *when had... had tied;* + ñątábo- (V_cI) *late afternoon settling down* + -kĭbĭtą > ñątábokĭbĭtą *when late afternoon had come.*

Hypermorpheme Class 550 has the meaning of subordination to a principal transitive verb, in time preceding or contemporary with that of the principal verb, the subject of the subordinate verb being different from that of the principal verb. It manifests the hypergrammeme (+ $Compl^{-kI-}$ + $Appos^{440t}$). Its unique member—

Hypermorpheme 541, -kĭšǫ *completive, transitive tie*: + siną́- (V_cT) *to think* + -kĭšǫ > sinąkĭšǫ (*someone*) *having thought;* + ʔiką- (V_cI) *the others to be* + -kĭšǫ > ʔikąkĭšǫ *the others being* (*there*).

Morpheme Classes 410, 420, and 430 manifest grammemes which may be included in expanded grammemes whose manifestations are hypermorphemes of Alloclass 500t-DS.

2.2.2.2.1.2. The subordinate margin grammeme $Margin_{st}^{500t}$ contains two allograms (cf. Chart 5): $AgMargin_{st}^{500t\text{-}SS}$ which occurs when the subordinate verb and the principal transitive verb have the same subject referent; $AgMargin_{st}^{500t\text{-}DS}$ which occurs when the subordinate verb and the principal transitive verb have different subject referents.

The grammemes and expanded grammemes whose manifestations form members of the 500t-SS class of morphemes and hypermorphemes are as follows:

Grammeme $Co\text{-}incid^{510}$, like Suffix Class 510 which manifests it, has the meaning of subordination, in time contemporary with that of the principal verb. It combines with Transitive Base in hypergrammeme (+ $TBase^{VcT}$ + $Co\text{-}incid^{510}$) whose manifestation is a subordinate transitive verb, and with Intransitive Base in hypergrammeme (+ $IBase^{VcI}$ + $Co\text{-}incid^{510}$) whose manifes-

tation is a subordinate intransitive verb. Example of (+ TBase^{V_cT} + Co-incid^{510}): + ʔiná- (V_cT) *to give* + -kị (511) *contemporary subordinate* > ʔinąkị *giving.*

The grammeme Co-incid^{510} may be expanded as in the formula {+ TBase^{V_cT} + (+ Co-incid^{510} ± Neg^{410} ± Asp^{420}/Alt^{430})[25]} {+ bi- (V_cT) *to get, receive* + [+ -kị (511) *contemporary subordination* ± -ma (411) *negative* ± -bi (431) *alternative, condition*]} > bikịmabi *though not receiving.*

Grammeme Co-ord^{520} is manifested by Suffix Class 520 and is coordinating in meaning. It is a constituent grammeme of 500i-SS Margin as well as of 500t-SS Margin (cf. Chart 5). It combines with Transitive Base in hypergrammeme (+ TBase^{V_cT} + Co-ord^{520}) whose manifestation is a subordinate transitive verb, and with Intransitive Base in hypergrammeme (+ IBase^{V_cI} + Co-ord^{520}) whose manifestation is a subordinate intransitive verb. Example of (+ TBase^{V_cT} + Co-ord^{520}): + ka- (V_cT) *to say* + -ana (521) *and* > kaana *say and.*

The grammeme Co-ord^{520} may be expanded as in the formula {+ TBase^{V_cT} + (+ Co-ord^{520} ± Asp^{420}/Alt^{430})}: + {+ oinakĩmi- (V_cT) *to cause to breathe differently, to revive* + [+ -ana (521) *co-ordinative* ± -bi (431) *alternative, condition*]} > óinakĩmianąbi *revive but/or.*

Grammeme Appos^{440t} is manifested by Suffix Class 440t, and is subordinative, showing a tie with a principal transitive verb. It combines with Transitive Base in hypergrammeme (+ TBase^{V_cT} + Appos^{440t}) whose manifestation is a subordinative transitive verb, and with Intransitive Base in hypergrammeme (+ IBase^{V_cI} + Appos^{440t}) whose manifestation is a subordinate intransitive verb. It also occurs in certain noun forms. Example of (+ TBase^{V_cT} + Appos^{440t}): + ʔa- (V_cT) *to do, make* + -ṣǫ (441) *transitive tie* > ʔaṣǫ *doing, making.*

The grammeme Appos^{440t} may be expanded as in the formula {+ TBase^{V_cT} + [+ (+ Appos^{440t} ± Neg^{410} ± Asp^{420})/(± Past^{310} + Appos^{440t})/(± pur^{340}[26] + Appos^{440t} ± Neg^{410} ± Alt^{430})/(± comp^{396}[26] + Appos^{440t} ± Alt^{430}]}. Examples: {+ ko- (V_cT) *to eat fruit* [± -no- (341) *purposive* + -ṣǫ (441) *transitive tie*]} > konoṣǫ *eating fruit later;* {+ ʔapá- (V_cT) *to plant* + [± -no- (341) *purposive* + -ṣǫ *transitive tie* ± -ma (411) *negative* ± -bi (431) *alternative, condition*]} > ʔapánoṣǫ́mabi *although not going to plant later;* {+ pi- (V_cT) *to eat* + [± -akĩ- (314) *long ago* + -ṣǫ (441) *transitive tie*]} > piakĩṣǫ *having eaten long ago;* {+ ʔa- (V_cT) *to do, make* + [± -tąkĩ- (396) *completive* + -ṣǫ (441) *transitive tie* ± -bi (431) *alternative, condition*]} > ʔatąkĩṣǫ́bi *had done but.*

The grammemes, hypergrammemes, and expanded grammemes and hypergrammemes whose manifestations form members of the 500t-DS class of morphemes and hypermorphemes are as follows:

Grammeme Contemp^{530} is manifested by Class 530, and is subordinative in time contemporary with that of the principal verb and occurs when the subject of the subordinate verb is different from that of the principal verb. It is a constituent grammeme of 500i-DS Margin as well as of 500t-DS Margin (cf. Chart 5). It combines with Transitive Base in hypergrammeme (+ TBase^{V_cT} + Contemp^{530}) whose

[25] The grammeme Alt^{430} is manifested by Suffix Class 430, and has the meaning of alternative or condition; it occurs optionally in margins of subordinate transitive and intransitive verbs when correlated with either principal transitive or intransitive verbs.

[26] The grammeme pur^{340} has the meaning of purposive, and is manifested by the morpheme of Class 340. The grammeme compl^{396} has the meaning of completive, and is manifested by the morpheme of Class 396. Both of these grammemes occur (but not in the same word) as a preceding expansion of the grammeme Appos^{440t} in Subordinate Margin when the principal verb is transitive and the subject referent is the same for both the subordinate verb and the principal verb; similarly, they occur as a preceding expansion of the grammeme Appos^{440i} in Subordinate Margin when the principal verb is intransitive, and the subject referent is the same for the subordinate and principal verbs.

manifestation is a subordinate transitive verb, and with Intransitive Base in hypergrammeme (+ $IBase^{VcI}$ + $Contemp^{530}$) whose manifestation is a subordinate intransitive verb. Example of (+ $TBase^{VcT}$ + $Contemp^{530}$): + bari- (V_cT) *to look for* + -mainǫ (530) *while* > barimainǫ *while . . . look for.*

The grammeme $Contemp^{530}$ may be expanded as in the formula {+ $TBase^{VcT}$ + (+ $Contemp^{530}$ ± Asp^{420})}: {+ pi- (V_cT) *to eat* + [+ -mainǫ (531) *while* ± -ribi- (421) *also*]} > pimainǫribi *while . . . eat also.*

Grammeme Pur^{340} is manifested by Class 340 and is purposive in meaning. It is a constituent grammeme of 500i-DS Margin as well as of 500t-DS Margin (cf. Chart 5). It combines with Transitive Base in hypergrammeme (+ $TBase^{VcT}$ + Pur^{340}) whose manifestation is a subordinate transitive verb, and with Intransitive Base in hypergrammeme (+ $IBase^{VcI}$ + Pur^{340}) whose manifestation is a subordinate intransitive verb. Example of (+ $TBase^{VcT}$ + Pur^{340}): + pi- (V_cT) *to eat* + -nǫ́ (341) *purposive* > pinǫ́ *in order to eat later.*

The grammeme Pur^{340} may be expanded as in the formula {+ $TBase^{VcT}$ + (+ Pur^{340} ± Neg^{410} ± Alt^{430})}: {+ bi- (V_cT) *to receive* + [+ -nǫ (341) *purposive* ± -ma (411) *negative* ± -bi (431) *alternative, condition*]} > binǫmabi *although not going to receive.*

Hypergrammeme (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$) is manifested by hypermorpheme of Class 540, and is subordinative in time preceding or simultaneous with that of the principal verb, and having a different subject from that of the principal verb. It is a constituent hypergrammeme of 500i-DS Margin as well as of 500t-DS Margin (cf. Chart 5). It combines with Transitive Base in hypergrammeme [+ $TBase^{VcT}$ + (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$)], the manifestation being a subordinate transitive verb, and with Intransitive Base in hypergrammeme [+ $IBase^{VcI}$ + (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$)], the manifestation being a subordinate intransitive verb. Example: + bĩkáˀ- (V_cT) *the others bring* + -kĩbĩ (541) *when* > bĩkąkĩbĩ *when the others had brought.*

The hypergrammeme (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$) may be expanded as in the formula {+ $TBase^{VcT}$ + [+ (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$) ± Alt^{430}/Neg^{410}]}: {+ tą- (V_cT) *to try* + [+ -kĩbĩ (541) *when* ± -bi (431) *alternative, condition* > tąkĩbĩbi *would have tried but.*

Hypergrammeme (+ $Compl^{-kI-}$ + $Appos^{440t}$) is manifested by the hypermorpheme of Class 550, and is subordinative, showing a tie with a principal transitive verb, whose subject is different from, and with time after that of the subordinate verb. It combines with Transitive Base in hypergrammeme {+ $TBase^{VcT}$ + (+ $Compl^{-kI-}$ + $Appos^{440t}$)} manifested by a subordinate transitive verb, and with Intransitive Base in hypergrammeme {+ $IBase^{VcI}$ + (+ $Compl^{-kI-}$ + $Appos^{440t}$} manifested by a subordinate intransitive verb. Example: + is- (V_cT) *to see* + -kĩšǫ (541) *completive, transitive tie* > iskĩšǫ *having been seen, being seen.*

The hypergrammeme (+ $Compl^{-kI-}$ + $Appos^{440t}$) may be expanded as in the formula {+ $TBase^{VcT}$ + [+ (+ $Compl^{-kI-}$ + $Appos^{440t}$) ± Neg^{410}/Alt^{430}]}: {+ ʔa- (V_cT) *to do, make* + [+ -kĩšǫ (541) *completive, transitive tie* ± -bi (341) *alternative, condition*]} > ʔákĩšǫ́bi *although having done;* {+ k^waką́- (V_cT) *the others hear* + [+ -kĩšǫ (541) *completive, transitive tie* ± -ma (411) *negative*]} > k^wakąkĩšǫ́ma *the others not having heard.*

2.2.2.2.2. The structure of the margins of Subordinate Verb when the principal verb is intransitive parallels the structure of the margins when the principal verb is transitive.

The $Margin_{si}^{500i}$ grammeme is obligatory in Subordinate Transitive Verb (and in Subordinate Intransitive Verb) when the principal verb is intransitive; like the $Margin_{st}^{500t}$ grammeme it unites with the $TBase^{VcT}$ grammeme in a hypergrammeme

manifested by a subordinate transitive verb, and with the $IBase^{VcI}$ grammeme in a hypergrammeme manifested by a subordinate intransitive verb. It has the functional meaning of relating the state or action of the subordinate verb with that of a principal intransitive verb as to time and persons involved, and may include further meanings of negation and aspect. It is manifested by the 500i class of morphemes and hypermorphemes.

2.2.2.2.2.1. Morpheme Class 500i manifests the grammeme $Margin_{si}^{500i}$ (cf. Chart 5), and, like the grammeme it manifests, it has the meaning of subordination and relation as to time and person of the state or action of the subordinate verb with that of a principal intransitive verb. It contains two alloclasses: Alloclass 500i-SS manifests allogram $Margin_{si}^{500i\text{-}SS}$ in a subordinate verb whose subject referent is the same as the subject referent of the principal verb, and Alloclass 500i-DS which manifests allogram $Margin_{si}^{500i\text{-}DS}$ in a subordinate verb whose subject referent is different from that of the principal verb.

The morpheme classes of Alloclass 500i-SS are:

Morpheme Class 320 which was described in **2.2.2.1,** and which here manifests the grammeme $Present^{320}$.

Morpheme Class 520 which was described in **2.2.2.2.1.1,** and here, as there, manifests the grammeme $Co\text{-}ord^{520}$.

Morpheme Class 440i manifests the grammeme $Appos^{440i}$, and is subordinate, in apposition with the subject of an intransitive principal verb; its unique member—

Morpheme 442, -aš∞-š indicates correlation with an intransitive principal verb; in verbs, allomorph -aš follows Verb Base immediately, allomorph -š occurs in other positions. Examples: + pi- (V_cT) *to eat* + -aš > piaš *eating*; + $k^wą$- (V_cI) *to go* + -aš > $k^wąąš$ *going*.

The constituent morphemes of Alloclass 500i-DS are as follows:

Morpheme Class 530, as described in **2.2.2.2.1.1,** which here, as there, manifests the grammeme $Contemp^{530}$.

Morpheme Class 340, as described in **2.2.2.2.1.3;** here it manifests the grammeme Pur^{340}.

Morpheme Class 540, as described in **2.2.2.2.1.1;** here, as there, it manifests the hypergrammeme (+ $Compl^{\text{-}kI\text{-}}$ + $Acc^{\text{-}bI/\text{-}bIta}$).

Morpheme Class 560 has the meaning of subordination to a principal intransitive verb when the time of the subordinate verb is preceding or contemporary with, and the subject different from, that of the principal verb. It manifests the hypergrammeme (+ $Compl^{\text{-}kI\text{-}}$ + $Appos^{440i}$). Its unique member —

Hypermorpheme 561, -kïš *completive, intransitive tie*: + ʔa- (V_cT) *to do, make* + -kïš > ʔakïš *having been done.*

2.2.2.2.2.2. The subordinate margin grammeme $Margin_{si}^{500i}$ contains two allograms (cf. Chart 5): $AgMargin_{si}^{500i\text{-}SS}$ which occurs when the subordinate verb and the principal intransitive verb have the same subject referent, and $AgMargin_{si}^{500i\text{-}DS}$ which occurs when the subordinate verb and the principal intransitive verb have different subject referents.

The grammemes and expanded grammemes whose manifestations form members of the 500i-SS class of morphemes and hypermorphemes are as follows:

Grammeme $Present^{320}$ is manifested by Suffix Class 320, and has the meaning of present or contemporary time. It combines with Transitive Base in hypergrammeme (+ $TBase^{VcT}$ + $Present^{320}$) whose manifestation is a subordinate transitive verb, and with Intransitive Base in hypergrammeme (+ $IBase^{VcI}$ + $Present^{320}$) whose manifestation is a subordinate intransitive verb. Example of (+ $TBase^{VcT}$ + $Present^{320}$): + is- (V_cT) *to see* + -i (321) *present, contemporary* > isi *seeing*.

The grammeme $Present^{320}$ may be ex

panded as in the formula {+[+ $TBase^{VcT}$ + (+ $Present^{320}$ ± Neg^{410} ± Asp^{420} ± Alt^{430})]}: {+ [+ $k^{w}abï\acute{c}\acute{i}$- ($V_cT$) *to come hearing* + (+ -ni (321) *present, contemporary* ± -iši (422) *only, just*]} > $k^{w}abï\acute{c}$inïiši *only coming from hearing.*

Grammeme Co-ord[520] described in **2.2.2.2.1.2** is also a constituent of 500i-SS Margin.

Grammeme $Appos^{440i}$ is manifested by Suffix Class 440i, and is subordinative, showing a tie with a principal intransitive verb. It combines with Transitive Base in a hypergrammeme (+ $TBase^{VcT}$ + $Appos^{440i}$) whose manifestation is a subordinate transitive verb, and with Intransitive Base in a hypergrammeme (+ $IBase^{VcI}$ + $Appos^{440i}$) whose manifestation is a subordinate intransitive verb. It also occurs in certain noun forms. Example of (+ $TBase^{VcT}$ + $Appos^{440i}$): + pi- (V_cT) *to eat* + -aš (442) *intransitive tie* > piáš *eating.*

The grammeme $Appos^{440i}$ may be expanded by grammemes already described, in combinations as in the formula (+ $TBase^{VcT}$ + [+ (+ $Appos^{440i}$ ± Neg^{410} ± Asp^{420})/(± $Past^{310}$ + $Appos^{440i}$)/(± pur^{340} + $Appos^{440i}$ ± Neg^{410} ± Alt^{430})/(± $compl^{396}$ + $Appos^{440i}$ ± Alt^{430}]}. Example: {+ pi- (V_cT) *to eat* + [+ -aš (442) *intransitive tie* + -bi (431) *alternative, condition*]} > piášbi *having eaten but.*

The grammemes, hypergrammemes, and expanded grammemes and hypergrammemes whose manifestations form members of the 500i-DS class of morphemes and hypermorphemes are as follows:

Grammemes Contemp[530], Pur[340], and hypergrammeme (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$), as described in **2.2.2.2.1.2.**

Hypergrammeme (+ $Compl^{-kI-}$ + $Appos^{440i}$) is manifested by the hypermorpheme of Class 560, and is subordinate, showing a tie with a principal intransitive verb; it is different in actor subject from that of the principal verb, and in time precedes that of the principal verb. It combines with Transitive Base in hypergrammeme {+ $TBase^{VcT}$ + (+ $Compl^{-kI-}$ + $Appos^{440i}$)}, manifested by a subordinate transitive verb, and with Intransitive Base in hypergrammeme {+ $IBase^{VcI}$ + (+ $Compl^{-kI-}$ + $Appos^{440i}$)}, manifested by a subordinate intransitive verb. Example: + ka- (V_cT) *to say* + -kïš (561) *completive, intransitive tie* > kakïš *having been said.*

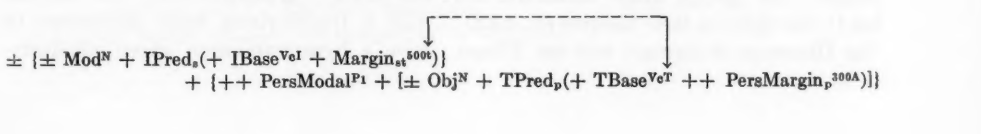
The hypergrammeme (+ $Compl^{-kI-}$ + $Appos^{440i}$) may be expanded as in the formula {+ $TBase^{VcT}$ + [+ (+ $Compl^{-kI-}$ + $Appos^{440i}$) ± Alt^{430}]}: {+ bi- (V_cT) *to get, receive* + [+ -kïš (561) *completive, intransitive tie* ± -bi (431) *alternate, condition*]} > bikïšbi *having taken but.*

3. The present section, paralleling **2,** treats intransitive verbs as to (1) the classes which they constitute in terms of their membership, and (2) the internal structure of their membership.

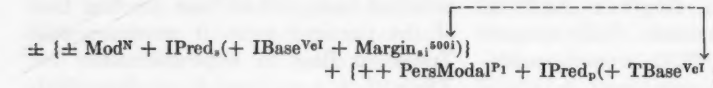
3.1. VI symbolizes a hyperclass of principal and subordinate intransitive verbs. In this section we shall be dealing with principal intransitive verb forms, as found in minimum Utteremes Nos. 4, 5, and 6 (which are easily recognizable in Formulas 4, 5, and 6), and with subordinate intransitive verb forms, as found in certain expanded forms of Uttereme Nos. 1 to 6. In the latter there is correlation between a subordinate intransitive verb and a principal transitive verb (as in Formula 1a), and between a subordinate intransitive verb and a principal intransitive verb (as in Formula 4a).

The expanded Uttereme No. 1 as in Formula 1a is illustrated in the following: oonoaš orotąkïšǫ kaa ñoo ʔapáakïšį *being*

Formula 1a: A Further Expansion of Uttereme No. 1



Formula 4a: A Further Expansion of Uttereme No. 4



there, after going on shore, they planted long ago (< oo *there*, -no *in*, -aš *appositive, intransitive tie*; o- *to come*, -ro- *up*, -tąkī- *completive*, -šǫ *appositive*; *transitive tie*, ka- *mode*, -a *third person*; ñoo *things*, ʔapá- *to plant*, -akī *long ago*, -šį *third person*).

The expanded Uttereme No. 4 as in Formula 4a is illustrated in the following: oonoaš orotąkīš kaa bīroakīšį *being there, after going on shore, they stayed long ago* (< oo *there*, -no in, -aš *appositive, intransitive tie*; o- *to come*, -ro- *up*, -tąkī- *completive*, -š *intransitive tie*; ka- *mode*, -a *third person*; bīro- *to stay*, -akī *long ago*, -šį *third person*).

In the expansion of Uttereme No. 4, as in Formula 4a, two types of verbs appear; one type manifests the principal intransitive verb hypergrammeme, and the other manifests the subordinate intransitive verb hypergrammeme which is nuclear within a unit which in turn is peripheral to the hypergrammeme ++ PersModal^{P1} + IPred$_p$- (+ IBase^{VcI} ++ PersMargin$_p^{300A}$), which hypergrammeme comprises the minimal form of Uttereme No. 4. As in transitive verbs, the principal verb types constitute a class of hypermorphemes, and the subordinate verb types constitute a hyperclass of hypermorphemes. Together, the class and hyperclass form a hyperclass VI of intransitive verb words. The members of the VI hyperclass have the following characteristics in common: each has the meaning of predicate in the unit in which it occurs, and also the meaning of state, or action not exerted toward a goal; each is composed of a base plus a margin; the bases of both principal and subordinate types are composed of the same hyperclass of morphemes and hypermorphemes (for specific IBase structure, see **3.2.1**), but differ in their margins (cf. **3.2.2**). The IBases are in contrast with the TBases of **2.2.1**, being constituted of a different class of morphemes and hypermorphemes.

3.2. Intransitive verb hypermorphemes contain Base and Margin (cf. Formulas 4, 5, 6, 1a, 4a). Intransitive Base will be considered in **3.2.1**, and Intransitive Margin in **3.2.2.**

3.2.1. Intransitive Base is composed of Core and optional or—in certain instances—obligatory suffixation. The Core of Intransitive Base may be intransitive, or it may be transitive followed by an intransitivizing suffix. The Intransitive Core will be described in **3.2.1.1,** the Transitive Core briefly in **3.2.1.2,** and suffixation in **3.2.1.3.**

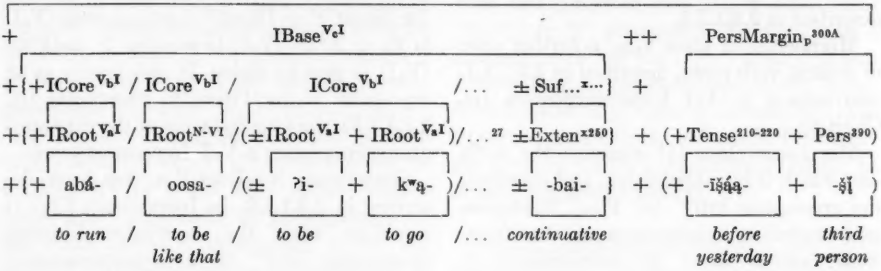
3.2.1.1. Intransitive Core of Intransitive Base is shown in Chart 6 as to position and content in Principal Intransitive Verb of Uttereme No. 1. Chart 6 and its footnote extension, Fn27, show six possible morpheme and hypermorpheme classes comprising the V$_b$I class (of classes), which manifests the ICore^{VbI} grammeme.

The particular examples given in Chart 6 are as follows: abábaiïšą́ąšį *he or they were running over a period of time before yesterday*; ǫ́osabaiïšą́ąšį *it was like that over a period of time before yesterday*; ʔikʷąbaiïšą́ąšį *he or they went to stay over a period of time before yesterday*.

The ICore^{VbI} grammeme is a constituent of most of the intransitive bases. (The TCore^{VbT} grammeme may be a constituent of Intransitive Base if followed by an intransitivizing suffix grammeme, **3.2.1.2.**) In addition to its occurrence in Intransitive Base, the ICore^{VbI} grammeme may also combine with a transitivizing suffix grammeme to form a hypergrammeme whose manifesta-

Chart 6

Principal Person Intransitive Verb (with Intransitive Core)


+ IBase^VcI ++ PersMargin_p^300A
+{+ICore^VbI / ICore^VbI / ICore^VbI /... ± Suf...^x··· } +
+{+IRoot^VaI / IRoot^N-VI /(±IRoot^VaI + IRoot^VaI)/...27 ±Exten^x250} + (+Tense^210-220 + Pers^390)
+{+ abá- / oosa- /(± ʔi- + kʷą-)/... ± -bai- } + (+ -ĩšą́ą- + -šĩ)
to run / to be like that / to be / to go /... continuative
before yesterday
third person

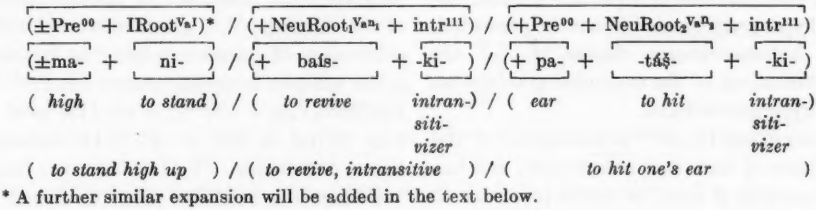
tion is a transitive base hypermorpheme (cf. **2.2.1.2**). It may also occur in certain nominalized forms in the noun category. The IBase^{VcI} grammeme has the meaning of state, or action incapable of direction toward a goal. It is manifested by the V_bI class (of classes) of morphemes and hypermorphemes.

3.2.1.1.1. The morpheme classes included in the V_bI class (which is a class of classes) will now be described. One of their characteristics is their distribution in various grammemes within the morphemically complex or simple core, which grammemes will be described in **3.2.1.1.2.** The relationship of the morpheme classes as included in the hypermorpheme classes of V_bI appears in detail there, as part of the distribution mode of the grammemes which the morpheme classes manifest. Reference to Chart 6 and its footnote extension will enable the reader to locate the morpheme classes in the V_bI core hypermorphemes as they are described. The morpheme classes are as follows:

Morpheme class V_aI comprises a list of intransitive verb roots which constitute a class of morphemes included in V_bI, and which also manifest the IRoot^{VaI} grammeme which occurs in expanded grammemes whose manifestations form classes of hypermorphemes included in V_bI (cf. Chart 6). The V_aI morphemes express state, or action not directed toward a goal. Examples of V_aI: o- *to come*; ki- *to say*; kʷą- *to go*; ʔĩĩ- *to rise (of water)*; ʔoš- *to sleep*; į- *to cry*; ʔoá- *to swell, multiply*; abá- *to run*; ąčá- *to open one's mouth wide*; bašíš- *to whisper*; činí- *to stand together*; čąkí- *to creep*; baí- *to dive*; bama- *to die*; kʷai- *to play*; inó- *to pass*; manó- *to forget*; onĩ- *to hide*; boko- *to pile up*; šoa- *to scratch*; čikí- *to go out*; nanĩ- *to sink*; raká- *to lie down*; sanó- *to be dry (as to plant sap)*; totó- *to be dry (after becoming wet)*.

Morphemes of class V_an_1, comprised of

[27] Chart 6 for Intransitive Core, like Chart 1 for Transitive Core, could be extended to include the remaining hypermorpheme classes of V_bI. The following could be inserted after the types of Core already given:


ICore^VbI / ICore^VbI / ICore^VbI
(±Pre^00 + IRoot^VaI)* / (+NeuRoot_1^Va n_1 + intr^111) / (+Pre^00 + NeuRoot_2^Va n_2 + intr^111)
(±ma- + ni-) / (+ baís- + -ki-) / (+ pa- + -táš- + -ki-)
(high to stand) / (to revive intran-siti-vizer) / (ear to hit intran-siti-vizer)
(to stand high up) / (to revive, intransitive) / (to hit one's ear)

* A further similar expansion will be added in the text below.

neutral verb roots, also appear in V_bI hypermorphemes (cf. Chart 6). They have been described in **2.2.1.1.1.**

Morphemes of class V_an_2, a further class of neutral verb roots, described in **2.2.1.1.1,** also appear in V_bI hypermorphemes (cf. Chart 6).

Morpheme class 111 contains the suffix -ki-, which is intransitivizing, and manifests the gramm[illegible]tr^{111} (cf. Fn_{27}). Examples, as included in hypergrammeme manifestations: boá- *to fill* + -ki- *intransitivizer* > boáki- *to fill (intransitive)*; bĭ- *eyes, face* + -pĭ- *to open* + -ki- *intransitivizer* > bĭpĭki- *to open one's eyes.*

Morpheme class N-VI is comprised of a limited number of morphemes and hypermorphemes from the noun class of words which may serve as roots in VI words. Their occurrence as fillers for non-verb grammemic spots is more frequent than for verb grammemic spots, and the internal structure of the hypermorphemes parallels that of noun words; therefore, they will be treated more fully in the description of nouns. In the structure of verb hypermorphemes, they manifest the $IRoot^{N\text{-}VI}$ grammeme. They constitute one of the V_bI classes which manifest the $ICore^{V_bI}$ grammeme. As to general meaning, they express state or quality. Examples: opĭ- *pretty, to be pretty*; čabá- *wet, to be wet*; ʔatima- bad, *to be bad*; oosa- *like that, to be like that*; nipakĭ- *dropped, to be let fall, to fall*; bĭciakĭ- *to be transformed.*

Prefix class 00 is a class of prefix morphemes and hypermorphemes. They have been described in **2.2.1.1.1.**

3.2.1.1.2. The grammeme constituents and their combinations in expanded grammemes and hypergrammemes will now be presented. The hypermorpheme classes of V_bI are manifestations of the expanded grammemes and hypergrammemes.

Grammeme $IRoot^{V_aI}$ is manifested by the V_aI class of verb root morphemes, and has the meaning of state, or action incapable of a goal. It occurs as the basic grammeme and also as the expansion grammeme in an expanded grammeme (cf. Chart 6) whose manifestation is a V_bI hypermorpheme: $(\pm\ IRoot^{V_aI} + IRoot^{V_aI})$, as in ± noą́- ($V_aI$) *to fly* + kʷaĺ- ($V_aI$) *to pass by* > noą́kʷaĺ- (V_bI) *to pass by flying.* It also occurs as an expansion of the $TRoot^{V_aT}$ grammeme (cf. **2.2.1.1.2**), the manifestation of the expanded grammeme being a V_bT hypermorpheme.

Grammeme $NeuRoot_1V_an_1$ has been described in **2.2.1.1.2.** In Intransitive Core it combines with the root-intransitivizing grammeme $intr^{111}$ in a hypergrammeme which is manifested by a class of V_bI hypermorphemes (cf. Fn27): $(+\ NeuRoot_1V_an_1 + intr^{111})$, as in + baáš́- ($V_an_1$ *to split and tear* + -ki- (111) *intransitivizer* > baáš́ki- (V_bI) *to split and tear.*

Grammeme $NeuRoot_2V_an_2$ has been described in **2.2.1.1.2.** In Intransitive Core it combines with grammeme Pre^{00} and grammeme $intr^{111}$ in a complex hypergrammeme which is manifested by a V_bI hypermorpheme (cf. Fn27): $(+\ Pre^{00} + NeuRoot_2V_an_2 + intr^{111})$, as illustrated in {+ bĭ- (12) *eyes* + -pĭ- (V_an_2) *to open* + -ki- (111) *intransitivizer* > bĭpĭki- (V_bI) *to open one's eyes.*

Grammeme $intr^{111}$ is manifested by suffix -ki- (111), and is intransitivizer of the neutral verb root. It combines with the $NeuRoot_1^{V_an_1}$ grammeme in a hypergrammeme which has been presented in the description of the $NeuRoot_1V_an_1$ grammeme. A further example of the $intr^{111}$ grammeme as included in the hypergrammeme $(+\ NeuRoot_1V_an_1 + intr^{111})$: + baís- ($V_an_1$) *to revive* + -ki- (111) *intransitivizer* > baíski- (V_bI) *to revive, intransitive.* The $intr^{111}$ grammeme also combines with the Pre^{00} grammeme and the $NeuRoot_2V_an_2$ grammeme in the complex hypergrammeme presented in the description of the $NeuRoot_2V_an_2$ grammeme. A further illustration of grammeme $intr^{111}$ as included in the complex hypergrammeme $(+\ Pre^{00} + NeuRoot_2V_an_2 + intr^{111})$: + mĭ- (12) *hand* + biáš́- (V_an_2) *to lick* + -ki- (111) *intransitivizer* > mĭbiáš́ki- (V_bI) *to lick one's hand.*

Grammeme Pre^{00} has been described in **2.2.1.1.2,** with particular reference to its occurrence in Transitive Core. In Intransitive

Core it combines with the NeuRoot$_2$V$_a$n$_2$ grammeme and the intr^{111} grammeme in the complex hypergrammeme already referred to (and seen in Fn 27). A further illustration of grammeme Pre^{00} in the complex hypergrammeme (+ Pre^{00} + NeuRoot^{2}V$_a$n$_2$ + intr^{111}): {+ kʷĩ- (16) *mouth, border* + -taš- (V$_a$n$_2$) *to hit* + -ki- (111) *intransitivizer* > kʷĩtáški- (V$_b$I) *to hit one's mouth.* Grammeme Pre^{00} may occur as an expansion of the basic IRoot^{V_aI} grammeme in an expanded grammeme whose manifestation is is a V$_b$I hypermorpheme (cf. Fn 27): (± Pre^{00} + IRoot ^{V_aI}), as illustrated in ± ci- (13) *butt, large end* + ni- (V$_a$I) *to stand, walk* ciní- (V$_b$I) *to stand at the back of a canoe.* Grammeme Pre^{00} also occurs in the hypergrammeme expansion {± Pre^{00} + (+ NeuRoot$_1$V$_a$n$_1$ + intr^{111})} whose manifestation is a further type of V$_b$I hypermorpheme (not shown in Chart 6; see fn* of Fn 27). The Pre^{00} grammeme is illustrated in the expanded hypergrammeme in {± ši- (24) *chest* + pĩĩ- (V$_a$n$_1$) *to hit* + -ki- (111) *intransitivizer* > šipĩĩki- (V$_b$I) *to hit one's chest.*

Grammeme IRoot$^{N\text{-}VI}$ has the general meaning of state. It is manifested by the N-VI class of morphemes and hypermorphemes which are included in V$_b$I (cf. Chart 6).

3.2.1.2. Transitive Core of Intransitive Base is shown in Chart 7 as to position in the principal person intransitive verb.

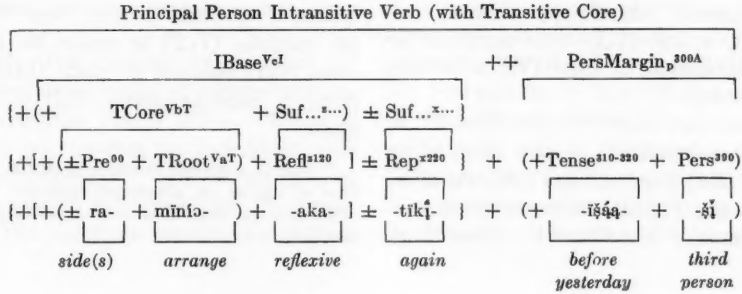
Chart 7 shows only one of the various classes of manifestations for the TCore^{VbT} grammeme; the others were given in Chart 1, Fn9, and described in detail in **2.2.1.** Here the TCore ^{VbT} grammeme combines with a grammeme of the Suf...^{z}··· class of grammemes in a hypergrammeme whose manifestations form a class of intransitive base hypermorphemes included in V$_e$I. The example given in Chart 7: rámĩníɔokatīkĩĩšą́ą̨ĩ *he or they recuperated recently.*

3.2.1.3. Suffix hyperclasses x, y, and z are optionally, and in some cases obligatorily, included in Intransitive Base, as they are in Transitive Base. They have been described in **2.2.1.3**; Charts 3a and 3b show the hyperclasses in combination with Transitive Core. The same charts might be used to present the hyperclasses in combination with Intransitive Core, resulting in Intransitive Base, with the exception that the Suf...^{y}··· class of grammemes (which is manifested by the suffix hyperclass y) would be included only if followed by at least one grammeme from the Suf...^{z}··· class (manifested by hyperclass z).

The grammemes manifested by the suffix classes of hyperclasses x, y, and z were described in **2.2.1.3.2.** However there examples were given only in combination with Transitive Core or with Intransitive Core in combinations forming Transitive Base. In this section, examples of those grammemes will be given in combination with Intransitive Core or with Transitive Core in combinations which form Intransitive Base.

Chart 7

Principal Person Intransitive Verb (with Transitive Core)



Grammemes of the Suf...^{x}··· class of grammemes are:

Grammeme Dir^{x130}: (+ ICore^{VbI} ± Dir^{x130}), + cɔ́- (V_bI) *to sit* ± -bo- (132) *down* > cɔ́bo- (V_cI) *to sit down.*

Grammeme Incep^{x150}: (+ ICore^{VbI} ± Regr^{x140I} ± Incep^{x150}), + k^{w}aɟ- (V_bI) *to pass by* ± -nakĭ- (143) *in opposite direction* ± -taba- (151) *for the first time* > k^{w}aɟnakĭtaba- (V_cI) *to turn over or around for the first time.*

Grammeme Abil^{x210}: (+ ICore^{VbI} ± Abil^{x210} ± Noct^{x260}), + ʔoš- (V_bI) *to sleep* ± -kasma- (212) *cannot* ± -nĭ- (261) *at night* > ʔošᵏasmanĭ- (V_cI) *cannot sleep at night.*

Grammeme Asp^{420}: (+ ICore^{VbI} ± Rep^{x220} ± Asp^{420}), + ni- (V_bI) *to walk, stand* ± -tĭkɟ- (221) *again* ± -iši- (422) *just, only* > nitĭkɟiši- (V_cI) *to be just walking again.*

Grammeme Rep^{x220}: (+ ICore^{VbI}) ± Dir^{x130} ± Rep^{x220}), + ʔi- (V_bI) *to be* ± -bo- (132) *down* ± -tĭkɟ- (221) *again* > ʔibotĭkɟ- (V_cI) *to be down again.*

Grammeme First^{x230}: (+ ICore^{VbI} ± First^{x230}), + naši- (V_cI) *to bathe* ± -paɟ- (231) *first* > našipaɟ- (V_cI) *to bathe first.*

Grammeme Amb^{x240}: (+ ICore^{VbI} ± Amb^{x240}), + mĭño- (V_bI) *to swim* ± -kią́- (241) *going* > mĭñokią́- (V_cI) *to swim going along.*

Grammeme Exten^{x250}: (+ ICore^{VbI} ± Rep^{x220} ± Exten^{x250}), + cɔ́- (V_bI) *to sit* ± -tĭkɟ- (221) *again* ± -bai- (251) *continuative* > cɔ́tĭkɟbai- (V_cI) *to have been sitting again.*

Grammeme Noct^{x260}: (+ IBase^{VcI} ± Noct^{x260}), + karáš́ki- (V_bI) *to snore* ± -nĭ- (261) *at night* > karáš́kinĭ- (V_cI) *to snore at night.*

Grammeme AM^{x270}: (+ IBase^{VcI} ± AM^{x270}), + niš- (V_bI) *to be angry* ± pǫ- (271) *this morning* > nišpǫ- (V_cI) *to be angry this morning.*

Grammeme IncorS^{x280}: (+ IBase^{VcI} ± Amb^{x240} ± IncorS^{x280}), + abá- (V_bI) *to run* ±-kąi- (241) *going* ± -ką- (281) *the others* > abákiąką- (V_cI) *the others go running.*

Grammeme Hab^{x290}: (+ IBase^{VcI} ± Hab^{x290}), + k^{w}ĭɟ- (V_bI) *to like, want* ± -ki- (291) *past habitual* > k^{w}ĭɟki- (V_cI) *used to like or want.*

The grammemes of the Suf...^{y}··· class occur in Intransitive Base only when followed by at least one grammeme of the Suf...^{z}··· class:

Grammeme Regr^{y140T}: {+(+ ICore^{VbI} + Regr^{y140T} ± Caus^{y160}) + Recip^{z180}}, {+[+cɔ́- (V_bI) *to sit* + -na- (141) *in opposite direction* ± -mi- (161) *causative*] + -aną́ (181) *reciprocal*} > cɔ́ɔnamianą́- (V_bI) *to cause each other to be set upright.*

Grammeme Caus^{y160}: {+(+ TCore^{VbT} ± Caus^{y160}) + Recip^{z180}}, {+[+ pi- (V_bT) *to eat* ± -mi- (161) *causative*] + -aną́- (181) *reciprocal*} > pímianą́- (V_cI) *to feed each other.*

Grammeme Ben^{y170}: {+(+ TCore^{VbT} ± Ben^{y170}) + Recip^{z180}}, {+[+ bĭ- (V_bT) *to bring* ± -šǫ (171) *benefactive*] + -aną́ (181) *reciprocal*} > bĭšǫną[28] (V_cI) *bring for each other.*

Grammeme Aux^{y190}: {+(+ TCore^{VbT} ± Aux^{y190}) + Recip^{z180}}, {+[+ ʔa- (V_bT) *to do, make* ± -kį- (191) *help to*] + -aną́- (181) *reciprocal*} > ʔákįąną́- (V_cI) *to help each other to do.*

The grammemes and hypergrammemes of the Suf...^{x}··· class may combine with Transitive Core and with Intransitive Core, the result being Intransitive Base in both cases,

Grammeme Refl^{z120}: (+ TCore^{VbT} + Refl^{z120}), + ramĭníɔ- (V_bT) *to restore the side* + -aka- (121) *reflexive* > ramĭníɔɔka- (V_cI) *to recuperate.*

Hypergrammeme ++ Regr^{z140I}: {+(+ TCore^{VbT} + Refl^{z120}) ±± Regr^{z140I}}, {+ [+ ramĭníɔ- (V_bT) *to restore the side* + -aka- (121) *reflexive*] ± -rakĭ- (144) *to return*} > ramĭníɔɔkarakĭ- (V_cI) *to be well again.*

[28] This is a unique occurrence in the data to date of -ną as an allomorph alternant of -aną́ (181), and was not listed as such in the previous sections.

Grammeme Recip$^{\text{x180}}$: (+ TCore$^{\text{VbT}}$ + Recip$^{\text{x180}}$), + noi- (V_bT) *to follow, love* + -aná- (181) *reciprocal* > noianá- (V_oI) *to love each other.*

3.2.2. Margins of intransitive verbs (like the margins of transitive verbs) constitute two types, principal and subordinate. The position of Principal Margin in the principal intransitive verb is indicated as Margin$_p$ in Utteremes 4, 5, and 6 (cf. Formulas 4, 5, and 6); the fillers of the spots in the respective utteremes are the 300A, 300B, and 300C classes of morphemes and hypermorphemes. Comparing person utteremes containing a principal transitive verb (Formula 1) and principal intransitive verb (Formula 4), it will be noted that the PersMargin$_p^{300A}$ hypergrammeme is common to both. Similarly, the ImpMargin$_p^{300B}$ grammeme is common to the principal transitive and intransitive verbs of imperative utteremes (Formulas 2 and 5); the PurMargin$_p^{300C}$ grammeme is common to the principal transitive and intransitive verbs of purposive utteremes (Formulas 3 and 6). Subordinate margin types are also common to both subordinate transitive and intransitive verbs, as is evident from a comparison of the subordinate intransitive verbs in Formulas 1a and 4a with the subordinate transitive verbs of Formulas 1 through 6. The description, then, for Margins as given in **2.2.2** applies equally well for intransitive as for transitive verbs; therefore, all the details of the description will not be repeated here. The following sections will serve to orient the margins in the matrix of the principal and subordinate intransitive verbs.

3.2.2.1. The margins of principal intransitive verbs consist of hypermorpheme and morpheme classes 300A, 300B, and 300C, which manifest the hypergrammeme ++ PersMargin$_p^{300A}$, and the grammemes ImpMargin$_p^{300B}$ and PurMargin$_p^{300C}$ respectively. The morpheme constituents of these classes were described in **2.2.2.1.1**, **2.2.2.1.2**, and **2.2.2.1.3**; examples of the individual morphemes were given in combination with both transitive and intransitive bases. The constituent grammemes and the hypergrammeme combinations were described in those sections also; examples of the grammemes and hypergrammemes were given only in combination with Transitive Base. We now present illustrations of their combinations with Intransitive Base.

The 300A class of hypermorphemes manifests the hypergrammeme ++ PersMargin$_p^{300A}$ (= + Tense$^{310\text{-}320}$ + Pers^{390}). It contains the alloclasses 300A$_3$ and 300A$_{1\text{-}2}$, according to its association with a third-person modal word or with first or second person modal words. Alloclass 300A$_3$ contains hypermorphemes which manifest the allohypergram (+ Tense$^{310\text{-}320}$ + 3pers$^{390a\text{-}390b}$), and are seen in combination with Intransitive Base as follows: + īīski- (V_oI) *to be dry* + [+ -a- (311) *immediate past* + -šį (392) *third person*] > īīskiašį (*it*) *has become dry*; + abá- (V_oI) *to run* + [+ -tį (321) *present* + high-tone (393) *third person*] > abatį *he or they are running.*

Alloclass 300A$_{1\text{-}2}$ contains fused or partially fused hypermorphemes which manifest the allohypergram (+ Tense-and-Non-third-Person$^{300A_{1\text{-}2}}$) which combines with Intransitive Base as follows: + ʔi- (V_oI) *to be* + -ǫ́ǫ (312 + 390) *yesterday, non-third person* > ʔiǫ́ǫ *I, we, you were yesterday*; + kʷą- (V_oI) *to go* + -nį (321 + 390) *present, non-third person* > kʷąnį *I, we, you go.*

The 300B class of morphemes manifests the grammeme ImpMargin$_p^{300B}$ which combines with Intransitive Base in the hypergrammeme (+ IBase$^{\text{VoI}}$ + ImpMargin$_p^{300B}$) (cf. Formula 5): + abá- (V_oI) *to run* + -'t (231) *imperative* > abát *run!*

The 300C class of morphemes manifests the grammeme PurMargin$_p^{300C}$ which combines with Intransitive Base in the hypergrammeme (+ IBase$^{\text{VoI}}$ + PurMargin$_p^{300C}$)

(cf. Formula 6): + naši- (V_cI) *to bathe* + -nǫ́ (341) *purposive* > nášinǫ́ *going to bathe.*

3.2.2.2. The margins of subordinate intransitive verbs are of two types, as seen in Formulas 1a and 4a. The $Margin_{si}^{500t}$ grammeme of Formula 1a shows a tie between a subordinate intransitive verb and a principal transitive verb; the $Margin_{si}^{500i}$ grammeme of Formula 4a shows a tie between a subordinate intransitive verb and a principal intransitive verb. The margins were presented in Chart 5 in combination with Transitive Base forming Subordinate Transitive Verb; the same classes and alloclasses combine with Intransitive Base to form Subordinate Intransitive Verb. The constituent morphemes of Subordinate Margain were described in **2.2.2.2.1.1** and **2.2.2.2.2.1** where examples were given in combination with Transitive Core and with Intransitive Core. The constituent grammemes, hypergrammemes, and expanded grammemes and hypergrammemes of subordinate margins were described in **2.2.2.2.1.2** and **2.2.2.2.2.2.** Examples were given of the margins in combination with Transitive Core, resulting in Subordinate Transitive Verb. In this section examples will be given in combination with Intransitive Core, resulting in Subordinate Intransitive Verb.

The grammemes and expanded grammemes of Subordinate Margin in combination with Intransitive Core when the principal verb is transitive and has the same subject referent as the subordinate verb:

Grammeme Co-incid^{510}. (+ $IBase^{VcI}$ + Co-incid^{510}), + k^{w}ą- (V_cI) *to go* + -kį (511) *contemporary subordination* > k^{w}ąkį *going.* In expanded form {+ $IBase^{VcI}$ + (+ Co-incid^{510} ± Neg^{410} ± Asp^{420}/Alt^{430})}, {+ k^{w}ą- (V_cI) *to go* + [+ -kį (511) *contemporary subordination* ± -ma (411) *negative* ± -bi (431) *alternative, condition*]} > k^{w}ąkįmabi *not going but.*

Grammeme Co-ord^{520}: (+ $IBase^{VcI}$ + Co-ord^{520}), + ni- (V_cI) *to walk* + -aną (521) *co-ordinative* > nianą *ualk and.* In expanded form {+ $IBase^{VcI}$ + (+ Co-ord^{520} ± Asp^{420}/Alt^{430})}, {+ bana- (V_cI) *to talk* + [+ -aną (521) *and* ± -bi (431) *alternative, condition*]} > banaanąbi *though talking.*

Grammeme Appos^{440t}: (+ $IBase^{VcI}$ + Appos^{440t}), + coɔ- (V_cI) *to sit* + -ʂǫ *transitive tie* > coɔ́ʂǫ *sitting.* In expanded form it is seen in the formula {+ $IBase^{VcI}$ + [+ (+ Appos^{440t} ± Neg^{410} ± Asp^{420})/(± Past^{310} + Appos^{440t})/(± pur^{340} + Appos^{440t} ± Neg^{410} ± Alt^{430})/(± compl^{396} + Appos^{440t} ± Alt^{430})]}; example: {+ čikiš- (V_cI) *to be lazy* + [+ -ʂǫ (441) *transitive tie* ± -ma (411) *negative* ± -iši (422) *just, only*]} > čikišǫmaiši *just not being lazy.*[13]

The grammemes, hypergrammemes, and expanded grammemes and hypergrammemes of Subordinate Margin when the principal verb is transitive and has a different subject referent from the principal verb:

Grammeme Contemp^{530}: (+ $IBase^{VcI}$ + Contemp^{530}), + k^{w}ą- (V_cI) *to go* + -mainǫ (531) *while* > k^{w}ąmainǫ *while . . . go.* In expanded form {+ $IBase^{VcI}$ + (+ Contemp^{530} ± Asp^{420}), {+[+ ʔi- (V_cI) *to be* [+ -mainǫ (531) *while* ± -ribi (421) *also*]} > ʔimainǫribi *while . . . is also.*

Grammeme Pur^{340}: (+ $IBase^{VcI}$ + Pur^{340}), + k^{w}ą- (V_cI) *to go* + -nǫ́ (341) *purposive* > k^{w}ąnǫ́ *going to go.* In expanded form {+ $IBase^{VcI}$ + (+ Pur^{340} ± Neg^{410} ± Alt^{430})}, {+ k^{w}ą- (V_cI) *to go* + [+ -nǫ (341) *purposive* ± -bi (431) *alternative, condition*]} > k^{w}ąnǫ́bi *although going to go.*

Hypergrammeme (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$): {+ $IBase^{VcI}$ + (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$)}, + ʔik^{w}acį- (V_cI) *to be while going* + -kībī (541) *when, after* > ʔik^{w}acįkibī *after having been going.* In expanded form as in {+ $IBase^{VcI}$ + (+ $Compl^{-kI-}$ + $Acc^{-bI/-bIta}$) ± Alt^{430}/Neg^{410}]}, {+ k^{w}ą- (V_cI) *to go* + [+ -kībī (541) *when, after* ± -bi (431) *alternative, condition*]} > k^{w}ąkībībi *although he had gone.*

Hypergrammeme (+ $Compl^{-kI-}$ + Appos^{440t}): {+ $IBase^{VcI}$ + (+ $Compl^{-kI-}$ + Appos^{440t})}, {+ ʔi- (V_cI) *to be* + -kīšǫ

(551) *completive, transitive tie*} > ʔikĭšǫ *being there.* In expanded form as in {+ IBase^{VeI} + [+ (+ Compl-^{kI}- + Appos^{440t}) ± Neg^{410}/Alt^{430}]}, {+ ʔiro- (V_eI) *to be up* + [+ -kĭšǫ (551) *completive, transitive tie* ± -bi (431) *alternative, condition*]} > ʔirokĭšǫ́bi *although being up.*

The grammemes and expanded grammemes of Subordinate Margin in combination with Intransitive Core when the principal verb is intransitive and has the same subject referent as the subordinate verb:

Grammeme Present^{320}: (+ IBase^{VeI} + Present^{320}), + k^{w}ą- (V_eI) *to go* + -ni (321) *present, contemporary* > k^{w}ąni *going.* In expanded form {+ IBase^{VeI} + (+ Present^{320} ± Neg^{410} ± Asp^{420}/Alt^{430})}, {+ ʔošˌ- (V_eI) *to sleep* + [+ -i (321) *present, contemporary* ± -ma (411) *negative* ± -bi (431) *alternative, condition*]} > ʔošímabi *not sleeping but.*

Grammeme Co-ord^{520}, illustrated under Subordinate Margin when the principal verb is transitive, may also occur when the principal verb is intransitive; the same examples serve for both instances.

Grammeme Appos^{440i}: (+ IBase^{VeI} + Appos^{440i}), o- (V_eI) *to come* + -aš (442) *intransitive tie* > oaš *coming.* In expanded form {+ IBase^{VeI} + [+ (+ Appos^{440i} ± Neg^{410} ± Asp^{420})/(± Past^{310} + Appos^{440i})/(± pur^{340} + Appos^{440i} ± Neg^{410} ± Alt^{430})/(± compl^{396} + Appos^{440i} ± Alt^{430}); example: {+ ʔi- (V_eI) *to be* + [± -tąkĭ- (396) + -šˌ (442) *intransitive tie* ± -bi (431) *alternative, condition*]} > ʔitąkĭšˌbi *was but.*

Three of the grammemes and hypergrammemes, and the corresponding expanded grammemes and hypergrammemes illustrated under Subordinate Margin when the principal verb is transitive and has a different subject referent from that of the subordinate verb, may also occur in Subordinate Margin when the principal verb is intransitive and has a different subject referent from that of the subordinate verb; these grammemes and hypergrammemes are: Contemp^{530}, Pur^{340}, (+ Compl-^{kI}- + Acc-$^{bI/-bIt\ą}$). The further hypergrammeme occurring when the principal verb is intransitive is—

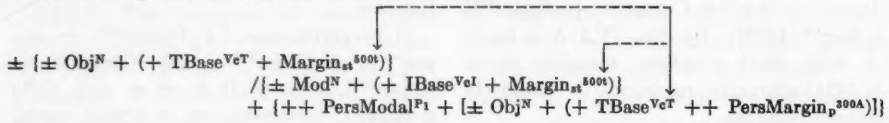
Hypergrammeme (+ Compl-^{kI}- + Appos^{440i}): + IBase^{VeI} + (+ Compl-^{kI}- + Appos^{440i}), k^{w}ą- (V_eI) *to go* + -kĭš (561) *completive, intransitive tie* > k^{w}ąkĭš *having gone.* In expanded form as in {+ IBase^{VeI} + [+ (+ Compl-^{kI}- + Appos^{440i}) ± Neg^{410} ± Alt^{430}]}, {+ k^{w}ą- (V_eI) *to go* + [+ -kĭš (561) *completive, intransitive tie* ± -bi (431) *alternative, condition*]} > k^{w}ąkĭšbi *although having gone.*

4. We are now ready to answer the question, "What constitutes a verb?". Verb (V) is a hyperclass comprised of VT and VI words which have the functional meaning of predicate in the units in which they occur, and have the lexical meaning of state or action. They contrast with other types of words, that is, with nouns, attributives, and particles, as to positions which they occupy (or the grammemic spots which they fill) in the utteremes, as to their internal structure, and as to their functional and lexical meaning. Internally they consist of unique Base (unique, except for slight overlap with Noun Base, cf. **2.2.1.1.i**) and unique Margin (unique, except for overlap in suffixes of century 400, which may also occur in noun and attributive expansions). The verbs V manifest the various predicate hypergrammemes which are obligatory as heads in the units in which they occur, and in the illustrations given are final in position in those units.

The members of the hyperclass V, that is, VT and VI, have been presented as two types of verbs, each composed of principal and subordinate forms. VT words include two subordinate transitive verb types, which are seen in Formula 7 (combining Formulas 1 and 1a) and Formula 8 (combining Formulas 4 and 4a). VT words also include three principal transitive verb types. The subordinate transitive verb types are those tied with Principal Transitive Verb and those

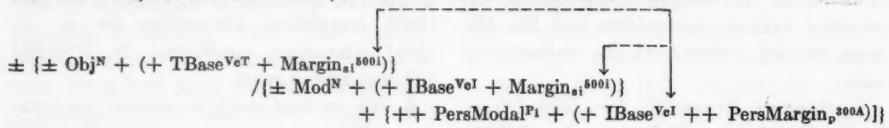
Formula 7: Combining Formulas 1 and 1a

Uttereme No. 1, Person-marked Action Exerted toward a Goal:



Formula 8: Combining Formulas 4 and 4a

Uttereme No. 4, Person-marked State, or Action not Exerted toward a Goal:



tied with Principal Intransitive Verb. The principal transitive verb types are: Principal Transitive Person-marking Verb (as in Formula 1), Principal Transitive Imperative Verb (as in Formula 2), and Principal Transitive Purposive Verb (as in Formula 3). VI words include types parallel to those of VT words: Subordinate Intransitive Verb tied with Principal Transitive Verb, and Subordinate Intransitive Verb tied with Principal Intransitive Verb; Principal Intransitive Person-marking Verb (as in Formula 4), Principal Intransitive Imperative Verb (as in Formula 5), Principal Intransitive Purposive Verb (as in Formula 6).

NOTES AND REVIEWS

DICTIONARY OF ANTHROPOLOGY. By Charles Winick. Philosophical Library, New York, 1956.

C. F. VOEGELIN

1. We speak of unified knowledge, but our technical words betray us: we have not even approached unified knowledge in the subfields of anthropology.

In 1956 we could say: "The minimum number of inescapable technical terms in linguistics, as determined from usage in introductory textbooks by Sturtevant, Sapir, and Bloomfield (and from Harris' much-reduced exposition of Trubetzkoy) totals 400 [IJAL 14. 115–30, 1948]. Add to this the recent sources of new terms—Harris, Hjelmslev, and Hockett—and the total of technical terms commonly used today is probably closer to 500. Surprisingly few of the terms in this sample appear in cultural anthropology; and most of those which are shared by culturalist – . . . – are sparingly used by linguists. It would be possible to show the converse of this—that linguists have not generally utilized terms (for their analogical problems) which have been effectively used by culturalists."[1]

Now, in 1957, we need to revise upward the 1956 total of 500 technical terms for linguistics alone, since a whole army (in actual numbers, something approaching a thousand linguistic analysts), led by Kenneth Pike, have announced their intention to give us information on morphology-syntax, as well as on phonology, in a freshly innovated set of technical terms whose shibolith is etic or emic (and let no one confuse an *utterance* with an *uttereme*). Information is exactly what we will get from this army which covers more territory than that occupied by the combined forces of all other linguists; the price of this information will be comprehension of the new etic-emic terminology.

More generally, the initial cost of unified knowledge is always a comprehension of technical terminology in fields other than our own. As a practical aid to this, we could use with great profit an authoritative dictionary (or better still an encyclopedia; here I concur with my colleague David Bidney) in which all terms actually used in the different fields of anthropology were clearly identified in respect to the work to which the different specialists put them.

If the dictionary here reviewed does not do this for us, it seems useful to show just where and how it fails, and trust that the job will be properly done some day.

2. In 579 pages of double column, (mostly) single paragraph definitions of terms from archaeology, cultural anthropology, linguistics, and physical anthropology, the author of Dictionary of Anthropology cannot hope to be either entirely accurate or equally oriented. He says in his Preface (vi): '. . . anthropologists do find it necessary to speak a special vocabulary among themselves. To this special language this dictionary invites the reader.' The non-anthropologist reader might have been told that there is, in truth, not 'a special vocabulary' but several such in anthropology; that archaeologists delight in meeting with each other partly because they speak the same language, not shared by non-archaeological anthropologists (e.g. the specialized use of 'typology' and 'type' in archaeology); so also linguists; physical anthropologists speak more and more in the scientific dialect of genetics and biology in general; and the central core of specialists in anthropology—the culturalists—are least homogeneous in specialized vocabulary. But perhaps the author had in mind a reader who was a beginning student or advanced scholar in only one field of anthropology—a reader

[1] C. F. Voegelin, Subsystems Within Systems in Cultural and Linguistic Typologies, *in* For Roman Jakobson (The Hague, 1956, p. 592).

who would have need of a reference book to identify terms used by other specialists in anthropology. How reliable would this dictionary be for this purpose? Not too bad—certainly not for a partial orientation concerning the terms selected. (There is no scope note for the terms selected; and no restriction to printed sources; and no indication of source for the terms selected). Suppose an 'anthroarchaeologist' (as defined on p. 28) wanted to consult this dictionary in his occasional reading in linguistics; how often would he find an unfamiliar term listed? One may judge (as I do, under **3** below) from the following exhaustive list of linguistic terms which I cite without the author's definition and without comment from me [except for occasional square brackets in which I offer correction because the definition of the term wobbles seriously (and, so far as I can see, occasional wobbliness in definitions of linguistic terms occurs with about the same modest frequency as in definitions of terms from cultural anthropology, e.g. (p. 193) 'ethnohistory', and (p. 214) 'magic flight')]:

37 language names (hereinafter, lg.) in A, beside: ablative, ablaut [mostly used for qualitative rather than quantitative gradation], absorption, accent (circumflex, final, pitch, stress), accidence, acrophony, actualization, addition, address (term of), adessive, adjective (descriptive, limiting), affinity, affixation, affricative, agglutination, allative, allomorph, allophone, alphabet (phonetic) ['used everywhere by civilized people' but still competes unsuccessfully with logographic writing in China], alternant (basic, zero), alveolar (palatal), amelioration, anacoluthon, anaphor-a (-ic), anaptyxis, anticipation, anvil (hammer and), aorist, apical, apocope, apophony, aposiopesis, apparatus (speech) [but sub-laryngeal organs also move in the production of 'vocal sound'], apple (Adam's), apposition (close), archiphoneme [thereby setting up a new unit phoneme], area (dialect, lateral, speech), arrangement, articulation (apical, basis of, dorsal, points of, positions of, uvular), articulator (fixed, mobile), arytenoids, aspirate, aspiration, asibilation, assimilation (contact, distance, incontiguous, progressive, regressive), asterisk, asyllabic, asyndetism, atlas (linguistic, dialect).

19 lg. in B, beside: bahuvrihi, barbarism, bilabial, bilabiodental, bilingual, biolinguistics, blend, borrowing (cultural, dialect, intimate, linguistic) [in the definition of 'cultural borrowing' we have the reductio ad absurdum of the Tylorian influence on definitions of culture], boundary (language), bow-wow, brachylogy, breathing (rough), breve, bukvista.

20 lg. in C, beside: cacography, cacuminal [the retroflexed tongue rather than the 'quite high' contact point on the palate is the defining feature], cadence, caritive, case (absolute, common), cedilla, center (broca's), cerebral [see 'cacuminal'], change (ameliorative, analogic, linguistic, name, pejorative, phonetic, semantic sound, symbolic) [it has yet to be demonstrated that writing retards any change, analogical or other], chant, chreia, class (form, word), click (labial), closure, coarticulation, colonization (language of), communication (density of), communion (phatic), community (speech), comparison (base of), complement (phonetic), compound (fused, phrasal, synthetic), conjunction, connotation, consonant (ejective, geminated, kinetic, labialized, labiovelarized, static, velarized, vocalic) [there is no separation 'by a glottal' stop between identical stops in gemination], consonantism, consonantization, constituent (immediate, ultimate, unique), construction (absolute, endocentric, exocentric, syntactic), contamination, continuant, contour (intonational), copula, cords (vocal), coronal, correspondence (phonetic), crasis, creation (analogic), creolization, cross-reference, cursive, cyrillic.

3 lg. in D, beside: declension, delative, dental, derivation, determinant, devanagari,

devoicing, diacritical, diagraph (consonantal), ding-dong, diphthong (falling, rising), diphthongization, dipinti, diptote, dissimilation, distribution (complementary), domal (see 'cacuminal'), dorsal, dorsum, doublets, drift (linguistic).

7 lg. in E, beside: element (floating, zero), enclisis, endocentric [used for compounds more often than for phrases], endophasia, epenthesis, epigraphic, episememe, excrescent (see 'epithesis'), exocentric, exolinguistics, exophasia ['Language that is spoken and heard.' (?)], expansion, expansion (chest), explosion, extension (analogical) [not restricted to affixes].

2 lg. in F, beside: family (linguistic), faucal, feature (acoustic, suprasegmental), flap, flexion, form (absolute, attested, bound, cognate, complex, familiar, finite, free, hesitation, nonsense, nursery, relic, starred, tactic, underlying) [if resemblance is taken as the only criterion for cognates, then borrowed forms are not distinguishable from cognates], fortis, fracture (vowel), fricative.

3 lg. in G, beside: geminate [see 'consonant'], gemination, gender, geography (dialect, linguistic), Germanic (primitive, sound shifts), gesture, gingival, glagolitic, glide (off, final, on, initial), glosseme, glossematics, glossolalia, glottal, glottalization, glottis, glottochronology, glottology, gradation (quantitative, vowel), graffito, grammar (comparative, diachronic, synchronic, universal), graphemics.

9 lg. in H, beside: haplology, harmony (vowel), heteroclite, heteronym, hiatus, hieratic, hieroglyphyc, high (-land), hiss, holophrase, homograph, homomorphy, homonymy, homophone, homophony, hush, husk (verb), hyperbole, hypochoristic, hypotaxis, hypothesis (wave).

6 lg. in I, beside: I fraction, identic, ideograph, ideophone, idiolect, idiom, implosion, incorporation, inessive, infection, infixation, inflection (base of), interdental, interjection(-al), intervocalic, intonation, irregular, island (speech), isogloss (bundle of isoglosses).

2 lg. in J, beside: jargon.

2 lg. in K, beside: katakana, kernel, kinesics.

3 lg. in L, beside: labial, labio-dental, labio-velar [for /w/ in *water* (?)], lag, lambdaism, language (agglutinative, amalgamating, analytic, animal, auditory, centum, classificatory, creolized, dead, dominant, flectional, formless, fully synthetic, genderless, hybrid, incapsulating, inflective, isolating, juxtaposing, living, lower, morphology of, polysynthetic, primary, pure, ritual, sign, standard, subordinating, synthetic, theories of, tone, weakly synthetic, classification (of) [the type terms are from the outworn whole system kind of typology which makes Chinese, for example, 100 per cent nonbound to justify the isolating type], lapse, laryngeal, laryngoscope, larynx, lateral (palatal, area), law (Bartholomae's, Dahl's, Darmesteter's, Grassman's, Grimm's, Meinhof's, palatal, phonetic), lengthening (compensatory), lenis, lenition, letter (black, vowel), lexicology, lexicography, lexicon, ligature, line (isolexic, isophonic, isosyntagmic), lingua franca, lingua geral brazilica, linguistics (comparative, descriptive, dynamic, historical, related, synchronic), lipids, logogram, loss.

12 lg. in M, beside: macron, maeroglossia, majuscule, mark (diacritical, quantity), marker, matres lectionis, medial accent, mediopalatal, melioration, metalanguage, metaplasm [(?)], metathesis, metonymy, mid-vowel, miniscule, minority (linguistic), modification (phonetic), monoglot, monophone, monophthong (-ization), mood (cohortative, hortatory), mora [and as a component of length], morpheme (bound, free), morphology, morphophonemics, mot-phrase, murmur, mutation (initial, vowel).

2 lg. in N, beside: nasal (palatal), nasalization, neoeme, notation (analphabetic).

2 lg. in O, beside: occlusive, officialese, onomasiology, onomatology, onomatopoeic

theory, opposition (bilateral), order (syntactic), orthography, ossicle (auditory), overdifferentiation, oxytone.

4 lg. in P, beside: palatal (alveolo-), palatalization, palate (soft), palatograph, paleography, paleontology (linguistic), paper (squeeze), paradigm (defective), paragoge, parataxis, parchment, parenthesis (close), paronym, pasigraphy, pasimology, pejoration, petroglyph, petrograph, pharyngal, pharyns, phememe[(?)], philology, phonation, phonatory, phoneme (assimilated, assimilatory compound, intermediate, primary, secondary), phonemics (synchronic), phoneticization, phonetics (acoustic, articulatory, descriptive, diachronic, genemmic, genetic, historical, instrumental, motor, articulatory, physical, physiological), phonetism, phonogram, phonology, phrase (center of the) [where morphemic markers characterize phrase, intonation contour may be non-distinctive], pictogram, pictograph (gravel), pictography, pidgin, pitch (absolute, exclamatory, final, pause, accent), plosive, polyphone, polyphony, pooh-pooh, position (absolute, anterior, cerebral, included, inverted, palatal, posterior), postdental, power (speech), predental, predicate, predication, prefixation, preliterate, privative, proclitic.

1 lg. in Q, beside: quantity.

0 lg. in R, beside: reduplication, reference, residue, resonance, resonator [it is usual to include the oral cavity with pharynx and nose (rather than the lungs) among the resonators], rolled, root.

9 lg. in S, beside: sandhi (compulsory, optional) [defined for external sandhi], satem, semantics, sememe, semivowel, sentence (minor), [minor sentences are just as 'conforming' as are major sentences; both are statements of patterns of order], series, shift (language, semantic, sound, Germanic sound), shortening, sibilant (gingival, abnormal, hiss, hush), sign (shift), signary, signes obscures, significs, solmization, sonant, sonograph, sonority (crest of), sonorous, sound (bridge, double, friction, glottal, musical, noise, change, substratum theory of) ['the glottal stop *h*' is a continuant rather than a stop], spectrograph (sound, analysis), speech (inverted monogenesis of, parts of, visible), spelling (heterographic, homographic), spirant (bilabial, dental, gingival, glottal, groove, labiodental, palatal, rounded labial, slit, unrounded labial), Sprachgefühl, stock (linguistic), stop (alveolar, bilabial, dental, alveolar, glottal, laryngal, labial, bilabial, sonant, surd, velar) [the *tt* in guttural is a little pre-velar rather than 'being pushed against the velum'], stress (fixed, syllabic), stretcher (sound), subordination, substitute (anaphoric), substitution, substratum (linguistic, theory of sound change), suffix, sun-language theory, superlative (absolute), superstratum, suppletion, surd, syllabary, syllabic, syllabic(non-), syllable (common), syncretism, syntax.

7 lg. in T, beside: tagmeme, taxeme, theory (age and area, family tree, pedigree, tree-stem, functional and structural, gestural, mechanistic, nativistic, onomatopoeic, sing-song), tilde, tone (pure), toneme, tongue (gift of), toponomatology, toponymy, transcription (broad, critical, diplomatic, narrow, phonemic, phonetic), transition (close, open), transliteration, transmutation, trigraph, triliteralism, trill (apical, tongue tip, uvular), triphthong, types (sound), typology (linguistic).

4 lg. in U, beside: umgangssprache, umlaut, unical, unvoicing, usage, uvular.

3 lg. in V, beside: velar, vernacular (contact), vocable, vocalization, voiced, voiceless, vowel (abnormal [(?)], back, central, closed, connecting, dark or deep[(?)], front, high, low, mid, mixed, palatal, retroflex, semi-, whispered).

0 lg. in W, beside: whisper, wikegan, word (borrowed, cognate, complex, compound, ghost, head, native, noa, portmanteau, primary, prime, sentence, simple, telescope), writing (acrophonetic, alphabetic, cursive, defective, ideographic, linear, logographic,

Ogam, phonemic, picture, plene, syllabic, word).

0 lg. in X, beside: xeironomia.

1 lg. in Y, beside: yo-de-ho.

1 lg. in Z, beside: zeugma.

3. My judgment is that the definitions of linguistic terms in the Dictionary of Anthropology, aside from occasional slips as noted in the brackets above, are generally adequate. They are also generally sophisticated, always brief, and often unambiguous; for example, 'portmanteau word' (p. 570): 'A word formed by putting the first part of one word and the second part of another together, e.g., *brunch* and *smog*. The expression originated in the explanation given of "The Jaberwocky" in *Alice in Wonderland*.'

As to the particular terms selected for definition, I cannot offer a parallel expression of general satisfaction and I doubt that any other specialist in anthropology would be satisfied with the terms selected for definition in his own field of specialization. The idea of a dictionary of anthropology is a good one; the execution in the book here reviewed is satisfactory; the selection of terms to be defined is, however, unsatisfactory. How would one go about making the selection for the specialized fields in anthropology representative of the terms currently used in them?

INDIANA UNIVERSITY

A MANUAL OF PHONOLOGY. By Charles F. Hockett. Indiana University Publications in Anthropology and Linguistics, Memoir 11 (IJAL), 1955. 246 pp.

NOAM CHOMSKY

1. This work is not a manual in the usual sense. It is more an original and controversial essay on phonological structure than a comprehensive account of well-established results or a systematic survey of representative approaches to phonological description. Several of its innovations turn out to be quite radical. The notion of phoneme itself occupies a rather peripheral place in Hockett's theory and in fact, we find that in certain languages there may be no level of description that can be called phonemic in any very natural and familiar sense when this theory is actually applied.

The central and most important section of the book (§2) contains a detailed attempt to apply immediate constituent analysis to phonological description and to investigate the consequences of this approach for typology. §0 is largely devoted to a proposed mathematical model for speech communication. §§1 and 5 deal with articulatory and acoustic phonetics, respectively, and §§3 and 4 are devoted to methodological questions. §6 contains a discussion of functional load, and a brief consideration of clear and rapid speech.

2. The model of speech communication presented in §0 has little connection with the remainder of the book and can be discussed quite independently. The central notion is that of a 'morpheme source' ('G.H.Q.') which is a device that can be in a variety of different states and that passes from state to state by emitting a certain morpheme. Associated with each state is a set of probabilities for the emission of various morphemes. The morpheme source has an initial state. Beginning in the initial state, it passes through a sequence of states, producing a morpheme with each transition. We may call the morpheme sequence which it has produced when it has returned to the initial state a 'sentence.' The output of the morpheme source is converted into a sequence of phonemes by a morphophonemic code, and this is converted into a continuous speech signal by a phonetic code. Kinesthetic and auditory feedback play a role in monitoring output. The process of hearing and 'understanding' is considered to be, roughly, the inverse of this process of production. By the 'grammatical structure' of a language, Hockett means the n^2 matrix which gives

the probability of transition of the morpheme source from state to state. Hockett asserts that all that is required, in principle, for the construction of a device 'from hardware which would speak, and understand speech, as humans do' is the collection of a vast amount of statistical information on the relative frequency of occurrence of morpheme sequences. From this we could construct the n^2 matrix which represents the entire grammatical structure of the language.

Rather straightforward considerations indicate that this view is untenable. Suppose that we collect the entire linguistic experience of Hockett's hypothetical speaker, Jill, and construct the n^2 matrix which is purported to represent her internalized grammatical pattern in complete detail. Suppose that after having produced the sequence *look at the cross-eyed*, Jill is in the state S. What is the probability that she will produce the morphemes *elephant*, *mole*, *of*, thereby returning (with the production of an intonation) to the initial state from which a new sentence can begin? Detailed investigation of Jill's total linguistic experience will no doubt show that none of these morphemes have ever occurred in this context. Hence, if the source is to be characterized completely on the basis of the statistics of the signal flow which it has emitted, and this alone, then we have no basis for assigning a higher probability to *elephant* or *mole* than to *of* in the state S. But this conclusion clearly fails to express Jill's ability to produce, recognize, and understand English sentences, and to distinguish grammatical nonsense from nongrammatical nonsense.

We might try to escape this consequence by arguing that S is the state in which any noun can be produced, or something of this sort. To say this would be to adopt what Hockett calls the viewpoint of ordinary grammatical analysis (p. 11), in which one considers form classes instead of states in the sense described above. But this is no minor revision; it amounts to a total rejection of the statistical theory of grammaticalness sketched above, since evidently very different sets of transitional probabilities will be associated with different contexts of a single form class. Hockett states that this ordinary grammatical analysis is derived from his model by replacing zero and low probabilities by 'impossible' and higher probabilities by 'possible'. However, it is evident from the example we have just given that the two models are not related in this simple fashion, since *elephant*, *mole* and *of* have identical (zero) probabilities for Jill in the context *look at the cross-eyed* — , if probability is to be based on an estimate of past frequency. In fact, there is little reason to believe that there is any interesting relation between the statistics of language use (Hockett's n^2 matrix) and the grammatical pattern. The grammatical pattern, as we see, is apparently not simply an approximation to the full statistical picture, developed for the practical purpose of simplifying the description (p. 10). It is introduced (among other things) for the purpose of explaining Jill's ability to distinguish the sentence *look at the cross-eyed elephant* from the nonsentence *look at the cross-eyed of*, an ability which is simply not explained by the statistical model. The question of how the linguist (and Jill) develops this grammatical pattern (or, in fact, what sort of a structure this pattern is) is a central concern of linguistics, and one to which Hockett's model suggests no answer.

It would, incidentally, not be particularly surprising if statistical models turn out to be of little relevance to grammar. Grammar, after all, is concerned with the structure of language, not the uses to which language is put. It is thus concerned with the set of sentences that belong to the language and the formal properties of this set. The fact that a certain sentence is frequent or infrequent does not seem to have any obvious relevance to its concerns.

There are several other remarks in this section that seem quite unacceptable. For one thing, first occurrence of a morpheme

sequence produced by Hockett's G.H.Q. seems to me to have almost no resemblance to what in everyday parlance we call 'originality' (cf. p. 10). Furthermore, statistics aside, the process of 'understanding' cannot be reduced simply to a process of running through a sequence of states associated with morpheme production. Part of our understanding of a sentence is surely based on our ability to divide it into phrases, to assign it to a certain sentence type, etc. No explanation of 'understanding' will be of much interest if it does not account for such simple facts as that Jill understands *Jack fetches water* and *the man ran down the hill* as somehow similar, as opposed to *did Jack fetch water*. But there is nothing common to the state sequences associated with these similarly understood declaratives. Correspondingly, we would expect that any attempt to describe sentence structure with no reference to constituent structure would be so complex as to be completely useless. It can, in fact, be shown that it is impossible to construct a finite morpheme source in Hockett's terms (i.e., an n^2 matrix for finite n) that will produce all English sentences without producing infinitely many nongrammatical sequences. In other words, an infinite amount of equipment will be required to build Hockett's hardware G.H.Q. Description in terms of constituent structure apparently avoids this intolerable consequence.[1]

Finally, the contention that the probabilistic linkages 'between G.H.Q. and the other non-speech goings-on in and around a person' take meaning into account' in a potentially precise way' is rather dubious. Hockett is, of course, quite correct in pointing out that what one says is not deterministically related to the individual's field of stimulation of the moment,[2] but replacing the word 'deterministically' by 'probabilistically' does not seem to offer much improvement. It seems more likely that it hides a tautology. We are told that '*other things being equal*, one is more apt to say *cat* when a cat is in evidence than otherwise' (p. 12, italics his). Since we do not know what other things are equal or unequal, we cannot make much progress in determining the significance of the probabilistic linkages. A minimum requirement that a theory of meaning must meet is that it give us some insight into synonymity or degree of synonymity. But such pairs of expressions as *female fox* and *vixen*, *ádult* and *adúlt* (which coexist for many speakers), *the cat drank the milk* and *the milk was drunk by the cat*, and so on, may have quite different probabilistic relations to outside stimulation, despite their synonymity or near synonymity. Nor does it seem possible to account for synonymity on the basis of the probability of non-speech responses to speech in any obvious way. So far, at least, speculation about probabilistic ties between speech and stimuli or subsequent behavior does not seem to have been particularly fruitful in clarifying semantic notions, and its claim to precision appears rather empty.

One important and useful feature of Hockett's theory of speech communication is his view of various levels of linguistic description as distinct systems of representation related by general correspondences. Thus morphemes are not literally composed of phonemes; rather, morphemic and phonemic representation are two ways of coding utterances, related by morphophonemic rules. There is no need to identify

[1] See N. Chomsky, Three Models for the Description of Language, Trans. IRE, PGIT, vol. IT-2, no. 3, pp. 113-24 (Sept. 1956), and Syntactic Structures (Mouton and Co., 'S-Gravenhage, Netherlands, 1957). This demonstration, incidentally, shows that replacement of the statistical model by a nonstatistical form class model, as discussed above, will also lead to an infinite grammar for English.

[2] Incidentally, the implication (p. 12) that Bloomfield held any such oversimplified view of meaning as this is surely unfair. In fact, Bloomfield quite explicitly rejects this view and discusses the remoteness of the connection between stimulation and linguistic response. Cf. L. Bloomfield, Language (New York, 1933), pp. 23, 141.

a certain sequence of phonemes as the phonemic content of each morpheme. We are free to relate these levels by whatever rules can be most simply formulated, without imposing this rather arbitrary notational requirement. If we adopt this point of view consistently, we can simplify particular morphophonemic (and other) descriptions, and we can greatly simplify linguistic theory by avoiding highly intricate construction of 'higher-level' elements as classes, sequences of classes, etc., of lower-level elements. By carrying over this conception to phonemic transcription itself, we can provide a natural framework for allophonic statements without the often artificial requirement that each physical segment be assigned to some specific element of the transcription or even (in the case of junctures) that each element of the transcription have assigned to it independently some physical segment (cf. below, §7).

3. The major part of the book is devoted to elaborating an immediate constituent approach to phonology and a corresponding classification of phonemic systems. There is a great wealth of illustrative material drawn from many languages and a great deal of detailed and often subtle reasoning in support of one or another analysis. The system of IC-analysis takes, roughly, the following form.

An utterance is divided into macrosegments which are the 'largest unit of phonological relevance.' In English, a macrosegment has as its IC's an intonation and a remainder in a coordinate construction. The intonation is broken down in successive steps into the ultimate phonological constituents of pitch levels, terminal contour, and a feature of extra height. The remainder of the macrosegment is subdivided into syllables. A syllable may be constituted of an onset, a peak, and a coda. Onset and coda (called 'margins') are consonantal—peaks are vocalic. Intersyllabic consonant sequences that cannot be assigned in any nonarbitrary fashion to either of the adjacent syllables are called 'interludes'. There may be contrast between interludes and coda + juncture + onset sequences. Phonological systems are classified by the structure of their syllables in terms of onsets, peaks, codas, interludes, and junctures.[3]

Along with intonational systems and remainders we have accentual systems, including Mandarin tones, English stress, and other phenomena. What the nature of these systems is and where they fit into the IC structure is not clear.

The ultimate components of the peaks, codas, onsets, and interludes are phonological qualities (e.g., tongue height, bilabial articulation, voicing, and so on). We can reach these elements by making 'vertical' cuts into successive elements and 'horizontal' cuts into simultaneous elements. Ordinarily, the vertical cuts (if any) precede the horizontal cuts. Thus some peaks may turn out to be subordinate constructions with vowels as nuclei (heads) and semivowels as satellites, and a nucleus might then be analyzed into a coordinate construction whose elements are degrees of tongue height and frontness-backness, into a subordinate construction with nasality as a satellite, and so forth. A great many vowel systems are analyzed in this way. Similarly, consonantal margins and interludes can be analyzed as sequences of consonant phonemes which are then analyzed into ultimate components on the basis of place and manner of articulation.[4] However, the horizontal cuts may

[3] One anomalous subclassification is the 'duration type', containing Japanese. Thus /ni-p-pɔ-ñ/ is subdivided into syllables as indicated, on the basis of the fact that these units correspond in length to the syllables of /sa-yo-na-ra/.

[4] I have omitted an apparently intermediate step between margin and ultimate constituent, which Hockett calls 'constitutional classification', and which involves notions like 'obstruent', 'sonorant', 'manner consonant', and 'laryngeal'. I am unable to relate this classification to the rest of the IC picture.

A general structural definition of 'vowel', 'consonant', 'semivowel', and several similar notions

precede the vertical cuts in certain systems. For example, Hockett suggests that the IC's of English codas be taken as a voicing long component and a voice-irrelevant sequence of articulations, in a coordinate construction. The latter can then be subdivided by vertical cuts into elements which can be finally analyzed into further components.

Such an analysis of English clusters and similar systems has been suggested before,[5] but, within the general framework that Hockett has developed, it reaches a new significance and constitutes a really radical departure from the conventional view of phonological structure. If the IC approach leads us to make vertical cuts before horizontal ones in a certain language, then there really is no set of elements in this language that can properly be called phonemes. That is, we never reach a level of analysis that has the special status and the set of special properties implied by the label phonemic. There is no natural stopping place along the chain of analysis from macrosegment to ultimate phonological constituent and no point at which we can say that each utterance is represented by a sequence of elements from a small alphabet, each of which is associated with a set of physical properties.

Hockett shows how the IC approach achieves a much greater flexibility by remaining uncommitted to an intermediate level of segmental phonemes, in the ordinary sense. He argues that this approach enables him to avoid arbitrary decisions in such matters as choice between unit phoneme or cluster analysis and the problem of multiple complementation. The IC approach aims to locate the hierarchic level on which an element functions or where a 'hole in the pattern' appears, and it need not impose a possibly arbitrary decision as to which segments are phonemes or how phonological segments are to be classed together.

4. This emphasis on flexibility and on the importance of constructing phonological theory in such a way as to allow a natural and nonarbitrary description for each language, in accordance with the theory, is a very positive aspect of Hockett's approach. Its import is lessened however, by a very large degree of indeterminacy in application, a feature of the manual that Hockett fully recognizes. If a phonological theory is indeterminate in the sense that it does not embody strict criteria for choosing between alternative solutions in each particular case, then, naturally, it will be more flexible as well, in that it will not exclude the most natural description for particular languages as incompatible with the theory. By weakening the conditions on phonological analysis, we can achieve greater flexibility. If the IC approach can be made determinate and unambiguous, without sacrificing flexibility, it will constitute a real contribution to phonology.

Such indeterminacy is perhaps inevitable in the early stages of development of a new approach such as Hockett's IC analysis. There are, however, several indications that it may have deeper roots in Hockett's views on methodology. Hockett points out (p. 143) that there are two kinds of methodological questions, questions of discovery and questions of justification. I think that there are serious shortcomings in Hockett's conception of the relation between these problems and in his development of a framework for justification.

The main emphasis in the methodological discussion is on discovery; that is, on the description of how, in the field, the analyst might proceed to gain some insight into language structure. The fundamental problem is to determine which utterances sound

is offered in §242. The definition appears to presuppose a physical definition of 'vowel' and 'consonant', however. Thus consonants and vowels are characterized in terms of occurrence in peaks or margins, but, as far as I can see, a given segment of a syllable is called a peak or a margin according to whether it is vocalic or consonantal.

[5] Z. S. Harris, Methods in Structural Linguistics (Chicago, 1951), Chap. 10.

different to a native speaker and to describe the physical features that differentiate these utterances. Hockett points out correctly that semantic information will be of almost no use in the actual procedures of phonological field work. He also describes an objective operational test (the paired utterance test that Harris proposed in METHODS, p. 32f.) that one can use in really crucial cases. Nevertheless, he holds that the most important tool for discovery is the linguist's ability to empathize and to 'enculturate to the new phonology.'

This emphasis on the intuitive character of discovery leads Hockett to maintain a methodological position that is somewhat at variance with his views on the nature of phonological analysis. 'Phonological analysis', so Hockett tells us, 'is concerned with the way in which utterances, under ideal hearing conditions, are kept apart *by virtue of acoustic evidence and it alone*' (p. 145, italics his). However, it is obvious that even under ideal hearing conditions we in fact often 'hear' in terms of grammar and frequency—i.e., we hear things which in fact are not said, but which we expected would be said. As Hockett puts it, very often 'the phonological structure for ... [the hearer] ... will be just that "intended" by the speaker, and thus in disagreement with the speaker's actual articulation' (p. 219). Finally, we notice the emphasis throughout the manual on 'phonetic realism', that is, the demand that phonological description must be directly related to actual articulation, not to intentions of the speaker and the like. It follows from all this that a native speaker of the language (as native speaker) is just the person who should NOT be doing phonemic analysis since he is likely to 'hear' in terms of expectations which are governed by grammar and frequency, and not the acoustic evidence alone. But this conclusion is incompatible with Hockett's view that the phonologist must acquire the personal prejudices of the native speaker, must be trained to mimic his receptive behavior, and must perform some sort of interpretation on the speech signal which hardware cannot match (p. 211).

One cannot quarrel with Hockett's assertion that intuitive mastery of a language is, in fact, a great aid to a linguist, just as familiarity with his data is an aid to any other scientist. And it is probably true that very little can be said about how one acquires such familiarity, how one 'empathizes' and acquires a 'feel' for a language. But it is important to emphasize that the whole purpose of methodological investigations is to show how, in principle, and in crucial cases, intuition can be avoided. We can escape the difficulty noted above by recognizing that study of the intuitive process of discovery (constructing hypotheses, gaining familiarity with the data, and so forth) is really outside the domain of linguistic method proper, and that linguistic theory itself must scrupulously avoid all intuition-based concepts. In other words, when we turn to the question of justification, which is, after all, at the heart of theoretical and methodological study, such notions as 'empathy' can play no role. Such operational devices as the paired utterance test, which Hockett mentions incidentally as an aid to field work, form, in fact, the empirical cornerstone of phonological theory.[6] Compared with the problem of developing objective methods of this sort, discussion of intuitive procedures is of minor importance.

Hockett's treatment of the problem of justification suffers from a related difficulty. In §321 he does briefly outline the general principles of IC analysis, but this description is unsatisfying. The major principle is to base constituent cuts 'on the phonetic facts except where there is overwhelming reason (stemming from other criteria) not to'. 'When confronted with alternative possible cuts into IC's, we prefer that cut

[6] It is, incidentally, rather surprising that there has been almost no serious effort to investigate and elaborate such operational devices for characterizing the fundamental same-different dichotomy objectively.

which yields elements of greater internal cohesion ... [i.e., common phonetic character] ... and with greater freedom of combination. ... We try to cut in such a way that comparable limitations on recombination are dealt with on the same level.'[7] Not only is this too vague to be of much assistance, but we find that in making specific decisions Hockett brings to bear various other criteria, such as absolute physical length of segments, simplicity of other rules of the grammar (e.g., description of stress), 'prominence', presence of syllable junctures, variety of elements in a class (in determining type of construction), and so on. It would be no mean achievement to give a general characterization of phonological IC structure and a general theory of IC analysis from which all these diverse criteria would follow as specific cases, and to criticize Hockett for not having achieved such construction would be quite unfair. But it is disconcerting to find so little recognition that the problem exists.

There is a certain ambiguity in the use of the word 'define' that may partially account for this tendency to underestimate the importance of giving a general theory of phonological structure. We sometimes speak of defining terms (e.g., defining the term 'phoneme') and sometimes of defining things (e.g., defining the phonemes of English). In the latter case, some such word as 'characterize' might be preferable. In general, Hockett uses the word 'define' in the sense of 'characterize'. For example, he says (p. 59) that 'the Japanese syllable is defined fundamentally in terms of duration and nothing else'; in Cantonese, 'a syllable is defined by its boundaries' (p. 60); peaks, in Fox, are defined by the presence of vocoids (p. 53), and so on. This usage of the word 'define' is in accord with Hockett's emphasis on the analysis of particular cases rather than on the formulation of the general principles that lead to these specific analyses. It is somewhat misleading, however. When we find the statement that the Japanese syllable is defined in terms of duration, we expect to find somewhere a general definition of the term 'syllable' from which it follows that in Japanese, in particular, the syllables happen to be characterized as a matter of fact by a feature of duration. But this general definition is never given, and it may be that the necessity for it is obscured by the use of the word 'define' in the description of the syllables of Japanese.

In general, then, what we miss in Hockett's methodological discussion is a serious attempt to show how recourse to intuition can be avoided by objective tests, on the one hand, and careful and precise definition of the theoretical concepts of linguistics, on the other. There is almost no attempt in the manual to define such basic notions as 'syllable', 'ultimate phonological constituent', 'phonetic realism', 'peak', etc., in general terms, in abstraction from any particular language. But without some general and abstract clarification of these notions, the problem of justification can hardly even be posed. The indeterminacy that we noted above is a direct result of this concentration on the study of individual instances, coupled with an avoidance of 'methodologic quibbles' (p. 23). In the absence of clearly enunciated general principles, one can very often suggest alternative analyses in the particular cases.[8] The re-

[7] A final principle of analysis gives the familiar definition of 'coordinate construction' and 'subordinate construction'.

[8] To take just one example, Hockett argues that his principles of IC analysis should definitively settle the question of the analysis of English syllabics. In particular, the position that the vocalic nuclei of *beat, boot, bait,* ... are single phonemes, while those of *bite, bout, Hoyt* are diphthongs is held to be indefensible because it mixes IC levels. However, proponents of this view can find ample support elsewhere in the manual. The major principle of analysis throughout is 'phonetic realism.' Hockett points out (p. 31) that there is a tense-lax distinction between the syllabics of *beat-bit, cooed-could, bait-bet.* This phonetic quality does not, presumably, distinguish *lot-light* or *shot-shout.* Correspondingly, for certain dialects at

mainder of this review will be devoted to pointing out some further effects of this imbalance.

5. The indeterminacy of application of IC analysis raises serious doubts about the significance of a typological system erected on this basis. If it is true that there is no clear way to choose among various conflicting analyses of many phonemic systems, then typology seems premature.

6. Most approaches to the problem of assigning allophones to a single phoneme rely on some notion of phonetic similarity of allophones. Hockett makes an interesting addendum to this condition, requiring also that 'segments which are in complementation are nevertheless phonetically distinct[9] unless they resemble each other phonetically in such a way that the differences can be extracted from the segments themselves and assigned, instead, to the environments in some phonetically realistic way' (p. 156). It seems that this requirement might provide a useful way to eliminate certain unwanted identifications which have always been troublesome for phonemic theory. The obscurity of the notion 'phonetically real', however, makes this principle difficult to apply. Is it phonetically real to assign the aspirated and unaspirated allophones of /p/ to the same phoneme? If so, to which part of the environment can we realistically assign the difference, i.e., the aspiration? Can the medial glottal stop which many speakers have in *button* be assigned realistically to the same phoneme as the initial consonant in *tin*, with the difference attributed to the context? The physically very different initial consonants of English *key*, *car*, *coop* will presumably be assigned to the same phoneme, with the palatalization of the /k/ in *key* attributed to the following front vowel. But if this is phonetically realistic, then what do we do in the case of Zuni, where /k/ is palatalized before /a/, but not /u/? Hockett has no qualms about setting up a phoneme /h/ in English whose allophones include the voiced 'scalar lengthener, lowering lengthener, and centering glide' (p. 80) in post-vocalic position, and the unvoiced, heavily aspirated glottal phone of *hue*, *when*, *hat*. On the other hand, he feels that to say that French /p/ and /f/ share a feature of 'frontness' as an ultimate phonological constituent, while /t/ and /s/ have a feature of 'centrality' and /š/ and /k/ a feature of 'backness', has an 'odor of pure game-playing, an odor which is seemingly appetizing to some linguists' and is just the opposite of 'hugging the phonetic ground closely' (pp. 173–4). One could go on citing cases from the manual which are unhesitatingly assigned to the categories 'phonetically real' and 'phonetically unreal', as if this notion were somehow immediately understandable and unequivocal. Perhaps there is some clear sense to the term 'phonetic realism' that gives just the distinctions that Hockett intends; but it is again quite disconcerting to find such a heavy burden of justification placed on a notion which is so vague and insecure.

7. Hockett's tendency to overestimate the objectivity of his approach is perhaps most evident when he criticizes other linguists for 'game-playing' and 'hocus pocus', as in the criticism of Jakobson's analysis of the French phonemes paraphrased above. In

least, it is possible to find a neat tense-lax pairing of vowels that leaves /ay/, /aw/, /oy/ unpaired. It also seems arguable on phonetic grounds that these nuclei do not have the same unitary articulatory motion as the others, do not maintain essentially the same articulatory position throughout, and so forth. Finally, in my speech at least, these three diphthongs behave somewhat differently with respect to following /l/ and /r/ (and morphophonemically, with respect to the morphemes -er, -al) than the other nuclei. This combination of structural and phonetic arguments is of the sort that we find throughout the manual. Its principles of analysis are not clear and rigorous enough to provide definitive solutions for this and many other specific problems that are treated.

[9] That is, not to be considered allophones of a single phoneme.

the absence of any explanation of the notion 'phonetic realism', this criticism is not very compelling. Hockett goes on to give what he believes to be a 'psychologic reductio ad absurdum' of some aspects of Jakobson's phonological theories, pointing out that any phonemic system can be arbitrarily converted into a binary code in such a way that the number of digits assigned to each phoneme is minimized. But this is not really to the point. Jakobson, as well as Hockett, insists on a physical definition of the distinctive features that he uses in phonological analysis. All that Hockett can say is that the choice of phonetic ground is different from his own.[10]

Harris' treatment of juncture is also criticized as being 'a most unfortunate and misleading kind of hocus-pocus' (p. 172). According to Hockett,[11] Harris tries to retain phonetic homogeneity for junctures by considering them as zero phonemes with no phonetic properties (hence identical properties in all environments). Junctures thus serve only as environments for ordinary segmental phonemes. 'Hocus-pocus' is characterized (p. 2) as the view that there are useful generalizations about language that are not inductive generalizations. It is difficult to see how this characterization applies to the proposal to regard junctures as boundary symbols in the environment of which segmental phonemes have certain special allophones. It is also not clear why it is 'phonetically unreal' to ascribe the 'crescendo voicing' of /b/ in /# bil/ to /b/ in the context /# —/, just as the aspiration of /p/ in /# pil/ is assigned to /p/ in the context /# —/. This seems to be a perfectly natural and clear way to state the facts. Furthermore, it is quite consistent with Hockett's general view on the nature of linguistic transcription, which we discussed at the end of §2. Hockett's insistence on the alternative statement that the crescendo voicing in /# bil/ is assigned to the juncture amounts to a purely notational (and quite unmotivated) requirement that each element of the transcription, including junctures, be directly and independently associated with some distinct physical segment of the transcribed utterance.

8. Hockett's evaluation of acoustic phonetics and its relevance to phonology is also impaired by his methodological preoccupation with field work (with such central notions as 'empathy' and 'enculturation') and his overestimation of the clarity and objectivity of his concept of 'phonetic (articulatory) realism.' The essential difference between Hockett's articulatory phonetics and acoustic phonetics is not that by using the former we find a 'small handful of allophones' for each phoneme, all being 'minor variations around some single measurement constant feature' with differences among allophones clearly attributable to the context and similar phones clearly assignable to different phonemes on the basis of self-evident environmental physical features, while in the acoustic case, on the contrary, allophones are 'numerous, diverse, and intersecting' (p. 209). The difference

[10] Incidentally, the remark that Jakobson's approach is based solely on 'impressionistic acoustics' is grossly unfair. Surely the authors of Preliminaries to Speech Analysis and subsequent publications have been at least as careful and objective in investigating the physical basis of speech as have any of the analysts who, Hockett considers, avoid 'game playing' and 'hug the phonetic ground closely.'

[11] As a matter of fact, Harris does not give this as a motivation for calling junctures 'zero phonemes', and under most circumstances he does not regard them as zero phonemes at all, but rather as elements 'defined so as to represent the difference between some segments and others' (Methods, p. 85). This is immaterial, however. Whether or not this is Harris' formulation, it is a perfectly coherent and phonetically real one. It is interesting that since the 'God's truth'-'hocus-pocus' distinction was suggested, every linguist who has committed himself has been on the side of God's truth. One suspects that terms like 'game-playing' and hocus-pocus' are nothing more than a most unfortunate and misleading way to damn opposing views without the annoying necessity for giving reasons.

is that Hockett's articulatory data are impressionistic and untested, while acoustic phonetics is forced to meet strict criteria of objectivity. When the methods of articulatory phonetics progress beyond the point where the linguist merely 'acquires the prejudices of the native speaker,' when the analyst backs up his impressionistic judgments about articulation by X-ray photographs and other methods for obtaining objective data about articulation, then we will very probably discover that the articulatory picture is by no means so clear as Hockett alleges. It is not at all obvious, for example, that in ordinary rapid speech the various allophones of English /t/ are characterized by some simple and clearly delineated articulatory property that sharply distinguishes them from all other phonemes, or that the first and third phonemes of /hihr/ (to use Hockett's English analysis) share some very natural and obvious articulatory property. Despite the purported objectivity and realism of his approach, Hockett never presents any experimental data which would indicate that these and many other judgments are justified. Consequently, the distinction he draws between articulatory and acoustic phonetics as to their relevance to phonology is not very convincing.

Hockett's specific reason for believing that 'acoustic phonetics can hardly ever be regarded as supplying any evidence for phonological analysis' is the fact that 'we discover that with surprising frequency a phonological feature which *must* be present, as judged by the responses of native speakers and by the observations of the phonologist, is *not* represented by anything that we can locate in the speech signal' (p. 211). More explicitly, the spectrograph cannot take account of the previous history of the signal, nor can it duplicate the expectations of the speaker. But the fact that acoustic identification of a phoneme must take into account effects on neighboring phonemes presents no difficulty, in principle, and the same obviously holds true for articulatory identification. And, as we have noted in §4, the fact that acoustic identifying devices do not duplicate the expectations and prejudices of the speaker does not indicate that they are deficient; this is just another way of stating the perfectly justified conclusion that the native speaker (and the linguist who empathizes with him) are disqualified for phonemic analysis, if this is concerned with identifications made on the basis of the acoustic evidence alone (p. 145).[12]

9. This uncertainty about the actual phonetic facts of rapid speech has considerable bearing on the problem of choice of analytic norms. It is not at all obvious that very rapid and careless speech preserves the 'discreteness of contrast' that is necessary if phonological analysis is not to collapse completely. We can expose some of the potential trouble spots by studying the notion of 'discreteness of contrast' somewhat more carefully. Obviously, such features as voicing and rate of speed of articulation play quite a different role in speech, and it is important to clarify the grounds for excluding the latter as irrelevant to phonemics. Hockett does this on the basis of discreteness versus continuity (p. 17). This will not do, however. There can be no real 'continuous scale contrasts' in human perception, and experiment would, of course, show that, as a matter of fact, only a finite number of distinct rates of speech can be recognized.[13] I think that a much better basis for distinguishing between phonemic features and

[12] For further discussion of Hockett's evaluation of acoustic phonetics, see the review of the Manual of Phonology by Morris Halle, J. Acoust. Soc. Am. 28, 509–11 (May 1956).

[13] In fact, a description of English with four phonemic stresses and four phonemic pitches (along with segmental phonemes) approaches the limit of a hearer's ability to make absolute identifications. Cf. G. A. Miller, The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information, Psychological Rev. 63, 81–97 (1956), for discussion of this problem, which should have considerable import for phonology.

such features as rate of speed is provided by the paired-utterance test mentioned above, which is, on other grounds, fundamental in phonology. This test sets up a matching relation (reflexive and symmetrical) among utterance tokens. If we consider a set of utterance tokens of English that differ only along the scale of voicing, we shall presumably find that this matching relation is in fact transitive; that is, if token X matches token Y and token Y matches token Z, then token X matches token Z. It is not logically necessary that this should be the case, and if we select utterances which differ along some such scale as rate of speed, we shall surely find that matching is not transitive. It seems that we should be able to characterize the linguistically relevant dimensions as those along which the matching relation is transitive.[14] But, although it seems likely that this approach may provide a proper delimitation of the object of phonological description for certain styles of speech, it may very well fail for very rapid speech; i.e., with such data it may be quite easy to construct matching chains between nonmatching occurrences of *bin* and *pin*, etc.

In an earlier discussion (p. 45), Hockett rejects interrupted fragments and hesitation forms as inadmissible data, since 'they are more easily described in terms of uninterrupted speaking as a frame of reference.' The same argument can be applied to the choice of analytic norms. In general, it seems to be much simpler to describe rapid speech as a special deviation from slower, more careful speech, than conversely. Hence it would seem reasonable, in the description of the entire speech behavior of an individual, to choose as a 'frame of reference' something nearer the clarity end of the clarity norm-frequency norm spectrum. No methodological objection could be raised against this. Nor, for that matter, would it be methodologically objectionable to set up a hypothetical underlying structure, which is not itself directly observed at all (even in slow speech), but which serves to integrate and organize the actually observed phenomena. If, however, such approaches do not prove feasible or convenient and each style of speech must be described as a separate system, then the question of validity of choice of norm cannot even be raised.

10. I can see no justification for the position that objectivity in linguistics is in principle something different from objectivity in physical science (p. 211), and that the basic methods in linguistics are empathy and intuition. In linguistics, as in every sufficiently complicated science, the process of discovery, of gaining familiarity with the data, of forming hypotheses, and so forth is very difficult to describe; we can do little more than say that it may involve a large measure of intuition. There must, however, be objective criteria for the validation and justification of grammars, if linguistics is to be a serious science. This can only mean that linguistic theory must be constructed with explicit and precise definitions and operational tests. The construction of such a theory should be the major goal of methodological work. It may be that grammatical research can best be described as the attempt to reconstruct precisely and explicitly the 'linguistic intuition' of the

[14] We touch here on fundamental questions, which have never been adequately treated, and which are related to what Hockett calls 'the fundamental assumption in phonology', namely, that 'the speakers of a language themselves hear some speech-events as the same, some as different', regardless of articulatory variation (p. 144). Put this way, the assumption says very little. We might replace it by a definition of the 'ultimate phonological constituents' for a given language as the phonetic features that distinguish utterance tokens not connected by matching chains, i.e., those that characterize the sets of tokens formed by collapsing these chains. It should then be possible to set up empirical tests to determine whether voicing, but not rate of speed, would qualify as a phonological feature for English. For a very penetrating study of the background and methods for investigations of this sort, see N. Goodman, The Structure of Appearance (Cambridge, 1951), especially Part III.

native speaker. But it does not follow from this that grammatical theory itself must be based on intuition. In fact only a completely objective theory in which empathy, prejudices, unanalyzed notions of "phonetic realism", and so on, play no part will have any real value as an explanation of 'linguistic intuition'. Failure to recognize this, and to draw the necessary conclusions from it, are major shortcomings of this manual.

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FUNDAMENTALS OF LANGUAGE. By Roman Jakobson and Morris Halle. 'S-Gravenhage: Mouton and Co. (Janua Linguarum, no. 1), 1956. ix + 87 pp.

NOAM CHOMSKY

This monograph, the first volume of a new linguistic series, contains a joint essay on phonology summarizing various theoretical and empirical investigations that these authors have reported on during the last few years[1] and an individual contribution of Jakobson's that ranges widely over many problems of language and pathological disturbances, literature, and general symbolic behavior. Both essays are written in a rather picturesque and inexplicit syle which, to me at least, presents a bar to comprehension. It is difficult to determine which statements are empirical hypotheses and which are true by definition, or just what conditions the authors require a phonemic transcription to meet. Furthermore, the justification that the authors give for their own positions is often vague and unconvincing. I think that this is unfortunate, since it seems to me that much can be said for their approach to phonological problems. At the risk of possible misunderstanding of their position, I will try to state what I think it is, concentrating on the essay entitled Phonology and Phonetics, and to see where in fact it diverges from certain other phonological theories.

Suppose that we have a set of utterances belonging to some language. Suppose further that we know which pairs of utterances are phonemically distinct[2] in this language; i.e., a test is available for classifying utterances into sets of repetitions. In addition, we have available a set of physically defined features or phonetic qualities that can be used in describing these utterances. We may now divide the utterances into segments, assigning to each segment as its VALUE the set of features that characterize it. The utterances must be segmented in such a way that the following condition is met:

(1) If two utterances are phonemically distinct, then the sequences of values assigned to these utterances must differ in at least one place.

Practically all approaches to phonological analysis have at least this much framework in common. Differences appear when we go on to investigate the nature of the physical features and the principles by which segments are assigned to the same phoneme. These are of course interrelated problems.

Jakobson and Halle proceed in the following way. First, they present a certain set of physical features, defined independently of any particular language. That is, these features are part of the general definition of Language—they are part of the conceptual framework, the theoretical apparatus which the linguist brings to the analysis of each particular language, very much as the general notions 'phoneme,' 'word,' 'immediate constituent,' etc., are defined independently as general analytic devices available for the organization of data in the case of each particular language. Twelve of these distinctive features are listed and described in §3.6 in both articulatory and acoustic terms, and it

[1] Cf., particularly Jakobson, Fant, and Halle, Preliminaries to Speech Analysis, M.I.T. Acoustics Laboratory, Technical report No. 13, 1952; Halle, The Strategy of Phonemics, Word 10.197–209 (1954); and Cherry, Halle, and Jakobson, Towards the Logical Description of Languages in their Phonemic Aspect, Language 29.34–46 (1953).

[2] I.e., nonrepetitions. The notion 'phonemically distinct' does not presuppose the notion 'phoneme'.

is asserted that these are sufficient (with the addition of prosodic features) for phonological analysis of all languages. This is an empirical claim. We can seek to determine whether in fact, in each language, utterances can be segmented in such a way that condition (1) is met, when values composed of these features are assigned to segments. Since the Jakobson-Halle distinctive features constitute a small subset of the features that are assumed, implicitly or explicitly, in most approaches to phonemic analysis (e.g., at most four points of articulation are available for any language), substantiation of this claim would in itself be an interesting result. The authors would wish to claim further that (1) can be met in a significant way for each language, in the sense that the redundancy of the feature description (cf. below) is low. This amounts to a claim, again empirically testable, that there will be a considerable amount of symmetry in the feature description.

A second important aspect of the Jakobson-Halle approach is that certain of the distinctive features are defined in relative, not absolute terms. Thus the grave-acute distinction is one of higher versus lower pitch. There is no absolute point for which we can say that concentration of energy in the frequency spectrum above this point signifies acuteness, while concentration below it signifies gravity. This means that these features must be determined for a given segment relative to a certain class of segments (which we will call an 'opposition set') to which the given segment is assigned. This necessitates some modification of the fundamental condition on segmentation stated above. We now require that the utterances of a language must be segmented in such a way that:

(2) The segments can be assigned to opposition sets in such a way that if two utterances are phonemically distinct, then the sequence of values assigned to these utterances must differ in at least one place, where values are assigned to a segment with respect to the opposition set to which that segment belongs.

It would furthermore be important to state certain conditions on these opposition sets. Thus we could require that:

(3) Segments occurring in the same phonemic environment[3] must belong to the same opposition set, so that, in particular, phonemically identical utterances would be associated with the same sequence of opposition sets.[4] With this revision, the claim that the given twelve distinctive features suffice for all languages retains its operational testability. Notice that two segments may be assigned the same value even if they are phonetically quite dissimilar, and may be assigned different values even if they are phonetically quite similar. This is quite important, as we will see below.

Certain of the distinctive features are, however, defined in absolute terms. This is true, for example, of the consonant-vowel distinction (the features consonantal-nonconsonantal and vocalic-nonvocalic). This means that segments will be assigned these features irrespective of the opposition sets to which they belong (i.e., whether or not there is a consonant-vowel opposition in the language). Since phonemes are defined in terms of feature content, it is thus misleading to speak of a phoneme as an endpoint in a network of oppositions or to state that 'when analyzing a given language into its ultimate constituents, we seek the smallest set of distinctive oppositions which allow the identification of each phoneme in the messages framed in this language' (p. 45).

[3] Despite appearances, this requirement can be stated without circularity as one of a set of conditions of compatibility relating the notion 'phoneme' to various other concepts of linguistic theory.

[4] We would surely not require that occurrence in the same phonemic environment be a necessary condition for membership in a single opposition set, however. Thus, e.g., the [l]'s of *helicopter, alimony*, etc., would be assigned to the same opposition set, along with the [r] of *arid*, etc. The problem of constructing opposition sets is essentially that of determining 'relevant contexts'.

These statements may not be accurate beyond the point where relative features enter into the identifications of the phoneme.

Suppose that we have now succeeded in segmenting, forming opposition sets, and assigning values to segments. Notice that certain features may not be assignable in certain opposition sets. Thus there may not be any oppositions with respect to a certain relative feature, or a feature may exhibit free variation in some position in a set of phonemically identical utterance tokens. We must, therefore, distinguish between the case where a segment lacks a certain feature (e.g., the /p/ of *pin* lacks voicing) and where a certain feature is not assignable to a given segment as a result of, e.g., lack of opposition, or free variation. To clarify terminology, we say that a segment has the value 0 with respect to a given feature if that feature is not assignable to it, and that otherwise it has the value + (if it has the feature) or − (if it lacks the feature). It is not difficult to state conditions under which the sequence of pluses and minuses associated with a segment will identify it, with zeros omitted, and we can regard this sequence as the value of the segment. We see, then, that certain segments may be assigned values of fewer than twelve elements. It is natural to seek an even more economical description by showing that certain of the feature indications are predictable in terms of others in the same segment. For example, in English, voicing is predictable for nasals and vowels, and can thus be considered a redundant feature for these segments. More generally, we may label as redundant (in given segments) those features which are not necessary for the identification of these segments. Thus voicing, though not predictable for English /l/,[5] does not serve to distinguish any /l/ from a segment in the same opposition set that has, otherwise, the same features. We now try to find the most economical assignment of values to segments that will preserve distinct representation for phonemically distinct utterances. If this is unique, we can speak significantly of THE distinctive and THE redundant features in certain positions, or throughout the language.

Given a minimal, nonredundant valuation as above, we can define a phoneme as a set of segments with identical values. A segment X and a segment Y are thus members of the same phoneme just in case their distinctive feature composition (in terms of the given, nonredundant valuation) is identical—just in case X and Y are identified in the same way in their respective opposition sets.

The authors would presumably agree that the distinctive features are not set rigidly for all time. If a distinctive framework with different physical reference turned out to be more useful, they would undoubtedly accept it, just as they have revised and redefined their features in the past. In this respect, too, the distinctive features have very much the same status in linguistic theory as does the notion 'phoneme' itself. Distinctive features and the notion 'phoneme' are taken to be given in the analysis of any particular language as part of the theoretical apparatus brought to bear in the analysis. But, of course, pragmatic con-

[5] Since we find both voiced and voiceless /l/'s (e.g., *leer*, *clear*). Of course, context enables us to predict the occurrence of voicing in /l/, but we run into difficulties in attempting to determine redundancy of features in terms of contextual factors. For example, the presence of voicing is predictable in the context / —rin /, but we would not want to say that it is a redundant feature of the /g/ that occurs in that context. On the other hand, Jakobson-Halle would presumably take context into account in some circumstances in determining redundancy—thus they might say that voicing is redundant in the context / s —/. The difficulty of specifying relevant contexts is of course not unique to the Jakobson-Halle approach. The natural way to attack this problem in their terms is by specifying more carefully the conditions on opposition sets and defining a 'nonredundant valuation' a of segment as a minimal set of feature indications that distinguishes the segment in question from every phonemically distinct segment in the same opposition set.

siderations can lead to revision of this apparatus—i.e., to a different conception of Language.

It is instructive to compare this approach to phonemic analysis with other widely held conceptions. Commonly, the phonemes of a language are held to be a set of elements meeting the following conditions:

(4) a. Two phones[6] belong to (are allophones of) the same phoneme only if they are in free variation or complementary distribution. b. Allophones of the same phoneme are phonetically similar. c. The set of phonemes must meet certain requirements of 'pattern congruity' and 'distributional similarity.'

Free variation figures in the Jakobson-Halle approach, as indicated above, at the point where we determine the feature valuation of segments. Given a set of phonemically identical utterances, if we find that some distinctive feature appears with either of its values in a certain segment, then this feature is not assignable to this segment, which is said to exhibit free variation with respect to this feature.

Jakobson-Halle never appeal directly to the principle of complementary distribution. I think that there is much justification for their avoidance of this principle, for its status and value are quite questionable. It is a commonplace that complementary distribution is not a sufficient condition for assigning two phones to the same phoneme. It has not been sufficiently emphasized, however, that it is also not a necessary condition, and in fact, that the principle is frequently violated with no unacceptable consequences. Two phones X and Y are said to be in complementary distribution in a given corpus if there is no context in which both X and Y occur. Suppose that X and Y both occur (contrast) in a class A of contexts, and that Y and Z contrast in a class B of contexts, where A and B have no common member. There are many circumstances under which any phonemicist would choose to assign X in the contexts A and Y in the contexts B to one phoneme, while assigning Y in the contexts A and Z in the contexts B to a second phoneme. But these perfectly natural phonemic solutions are ruled out by the principle of complementary distribution, since X and Y are not in complementary distribution in this case. To exclude such solutions is not only extremely arbitrary and unmotivated (since these solutions preserve the biunique relation between utterances and representations which is the strongest demand that it seems reasonable to place on phonemic analysis), but they also lead to unwieldy and complex phonemic solutions in many familiar cases. This familiar phenomenon of partial overlapping has often been brought forward as an argument in favor of defining features in relative instead of absolute terms; i.e., as an argument against too strict and absolute a formulation of the requirement (4b) of phonetic similarity. As we see, however, its consequences for (4a) are just as severe, since partial overlapping and the principle of complementary distribution are incompatible. Whatever is of value in this principle can be preserved by appropriate conditions on opposition sets; e.g., by (2) and (3), above. Beyond this it seems ad hoc and unacceptable.

Instead of requirement (4b) that allophones of a single phoneme be phonetically similar, Jakobson-Halle require that these allophones, in their respective opposition sets, have associated with them the identical sequence of feature indications, i.e., the same VALUE, in the sense characterized above. As we pointed out, two segments may be

[6] By a 'phone' here I mean a set of indistinguishable or 'sufficiently similar' phone tokens. One cannot speak of the distribution of phone tokens. The clearest formulations of such principles of phonemic analysis with which I am acquainted are those of B. Bloch in A Set of Postulates for Phonemic Analysis, Language 24.3-46 (1948), Studies in Colloquial Japanese IV: Phonemics, Language 26.86-125 (1950), and Contrast, Language 29.59-61 (1953); and Z. S. Harris, Methods in Structural Linguistics (Chicago, 1951).

assigned to the same phoneme even if they are not phonetically similar in an absolute sense, and two closely matching segments may (in the case of partial overlapping) be assigned to different phonemes if they are identified in their respective opposition sets by different feature indications. Similarly, two occurrences of the same phoneme may differ in redundant features.

With respect to criteria (4a, b), the Jakobson-Halle approach seems to compare quite favorably with alternative versions of phonemic structure. Given a set of distinctive features as part of the definition of language, it seems possible to meet the requirement of phonetic similarity in a natural way while avoiding some of the difficulties inherent in the use of such notions as complementary distribution. The Jakobson-Halle neglect of distributional considerations, and more generally, of considerations of patterning and simplicity (4c), however, leads to certain difficulties. Although this position is never explicitly stated, it seems clear that in their view there is a very direct, in fact, order-preserving relation between a phonemic representation and the associated sequence of speech segments. That is, speech is taken to be literally constituted of a sequence of phonemes, each with its distinctive and redundant features; accordingly, the phonetic value of a sequence of phonemes is the sequence of phonetic values of these phonemes. But this view has consequences which few would be willing to accept.

Consider, for example, the case of an English dialect where medial post-stress /t/ and /d/ merge in a tongue flap [D] and where only the normally redundant feature of vowel length distinguishes *writer* (phonetically, [ráyDir]) from *rider* (phonetically, [rá·yDir]). Jakobson-Halle would be forced to consider length to be a distinctive feature for vowels in such a variety of English, though its appearance (as distinctive) would be limited to this position and to the phonemic opposition /a/-/a·/.[7]

A weaker condition on the relation between phonemic representation and phonetic qualities would allow a much simpler and more natural solution. Irrespective of the *writer-rider* opposition, the rules of English grammar that convert sequences of phonemes into sequences of phones will have to contain the following:

(5) a. Vowels are automatically lengthened before voiced consonants. b. Medial, post-stress /t/ and /d/ become [D].

If we give /ráydir/ as the phonemic transcription of *rider* and /ráytir/ as the phonemic transcription of *writer*, rules (5a–b), applied in the given order, will automatically yield the correct phone sequences [rá·yDir], [ráyDir]. We can accordingly dispense with the heavily restricted phoneme /a·/ and the distinctive feature of vocalic length. But this solution violates the condition that the phonetic value of a sequence of phonemes is the sequence of phonetic values.

I think it is clear that this implicit assumption that phonemes literally occur in sequence in speech must be rejected. It does not seem difficult, in fact, to revise the Jakobson-Halle theory along lines that they themselves suggest in a different context, without sacrificing the general framework of their approach. In discussing style of speech, the authors argue that 'when analyzing the pattern of phonemes and distinctive features composing them, one must resort to the fullest, optimal code at the command of the given speakers', treating the 'slurred fashion of pronunciation [as] ... but an abbreviated derivative from the explicit

[7] This and similar examples are discussed in Harris, op. cit. M. Halle has brought to my attention a similar case in certain varieties of German where *reiss*, *reis*, etc. are distinguished, but only by the normally redundant difference in the vowel. Cf. P. Martens, Einige Fälle von Sprachlich Relevanter Konsonantendauer im Neuhochdeutschen, le Maitre Phonetique, No. 103, Jan.–June, 1955.

clear-speech form which carries the highest amount of information' (p. 6). In other words, in the description of the total linguistic behavior of an individual we can most efficiently account for his normal speech as a deviation from a more explicit standard which he could use if occasion demanded. But this last requirement, that the standard be actualized in some overt behavior, is really superfluous.[8] There is no reason why one should not attempt to account for the linguistic behavior of an individual in terms of a hypothetical constructed standard, if this leads to a more economical and revealing description, just as one sets up unactualized base forms, zero elements, etc. in morphology. One could object to this only on the basis of a kind of pseudo-objectivity that would rule out theoretical constructs throughout science. Following this line of reasoning, we can retain the Jakobson-Halle assumption of order-preserving correspondence, and accept the /ráytir/ — /ráydir/ phonemic analysis as the description of a hypothetical, unspoken standard to which any actual speech (in these dialects) is related by such rules as (5).

Equivalently, and less misleadingly, we can accept the /ráytir/ — /ráydir/ solution along with the whole Jakobson-Halle distinctive feature framework, but change our conception of the relation between phonemic representation and speech. The distinctive feature table, which assigns zeroes, pluses, and minuses to phonemes, would become a system of classification with no direct physical meaning. This abstract system is related to actual speech by a set of rules which we try to make as simple as possible. The optimal situation from the point of view of simplicity arises when we can interpret the value given to a phoneme in the distinctive feature table directly in physical terms; for example, if we can state that every phone of a phoneme with a plus value for the voicing feature is physically voiced. But occasionally, the total description can be simplified if we give such indirect rules as (5) instead. Although this must be worked out much more carefully, I think that the significant part of the Jakobson-Halle approach can be retained under this interpretation of the distinctive feature analysis as an abstract underlying system of classification related, perhaps indirectly, to the physical facts of speech. The complexity of this relation will be an important element in the evaluation of a particular phonemic analysis.

The sole criterion that Jakobson-Halle propose for evaluation of a phonemic solution is redundancy; the phonemic system for a language is the one with minimal average number of feature indications per phoneme, i.e., with the smallest number of pluses and minuses in the distinctive feature table. We have now suggested that some consideration of simplicity is also required. There are other reasons to suspect that their limitation of evaluation procedures to considerations of redundancy is too severe. Jakobson-Halle argue (p. 47) that this consideration answers affirmatively the question whether there is a unique phonemic solution for each language. This, however, is doubtful. For one thing, there is every reason to expect that there will in many cases be alternative systems of equal 'optimality' in this sense. Elsewhere[9] the

[8] In fact, it immediately suggests many problems and objections. Under sufficiently artificial conditions one can elicit not only special citation forms, but also morphophonemic and spelling pronunciations which can only lead to confusion and complication.

[9] Cherry, Halle, and Jakobson, op. cit. The authors point out that in the case of Russian, the average number of feature indications per phoneme of text is less than the average number per phoneme. In other words, the phonemes with shorter 'codings' into features are used more frequently, as would be the case in an efficient code. This might be taken as support for the analogy between coding and distinctive feature analysis, and as indirect evidence for rating a phonemic system more highly if it assigns shorter values to more frequent phonemes. But a closer analysis of the Russian case seems to show that there is a sim-

authors argue that the statistics of phoneme distribution should also be considered; we then can evaluate a phonemic solution by the average number of feature specifications per phoneme in actual text (not the average number per phoneme). This extension will undoubtedly cut down the number of equally valued alternatives, but in a rather arbitrary way. The nonstatistical measure discussed above has considerable motivation; it gives a good explication of one aspect of the symmetry which most linguists would seek in phonemic analysis. The extension to include statistical information seems to be just one of any number of rather arbitrary and unmotivated ways to choose among alternatives.

More seriously, the Jakobson-Halle evaluation procedure applies only when segmentation is fixed. But some of the most important problems of nonuniqueness concern the choice among alternative segmentations.[10] It thus appears that the authors have overstated the ability of their approach to eliminate nonuniqueness, and that if they wish to arrive at unique phonemic solutions in a nonarbitrary manner, they will very likely have to appeal to the kinds of simplicity considerations that are employed (in some still vague and unformulated manner) elsewhere in linguistic description.

Equal in importance to the problem of nonuniqueness, in the authors' view, is the question (also attributed to Chao) 'whether the dichotomous scale is the pivotal principle which the analyzer can profitably impose upon the linguistic code or whether this scale is inherent in the structure of language' (p. 47). They consider that 'there are several weighty arguments in favor of the latter solution.' Phrased in this way, this statement is at worst pointless—at best, misleading. If we take it literally, it seems to raise a pseudo-issue. It is hard to imagine what possible evidence could count for one of these positions and against the other. It is not clear what could be meant by saying that the dichotomous scale is 'inherent in the structure of language' other than that this scale is the one that can most profitably be imposed upon the linguistic code. These are just two ways of describing the same thing; the choice between them is only a matter of temperament.

From the arguments that Jakobson and Halle adduce in support of their position, however, it appears that they interpret this controversy in the following terms: are there extra-linguistic reasons for choosing the dichotomous scale (e.g., independent psychological reasons) or is the only motivation the resulting convenience in describing the linguistic data? They argue for the former view. This interpretation of their remarks yields a meaningful question, but one which is posed in a very misleading way. If we find extra-linguistic evidence for the dichotomous scale we may, if we like, say that we have shown that it is inherent in the structure of language. Or we may, with equal justification, say that the most profitable and economical way to view language as part of human behavior is in terms of the dichotomous scale. The question of the relevance to phonemics of extra-linguistic data is a meaningful and important one, but

pler structural explanation for the gain in efficiency of the distinctive feature coding when frequency is considered. The syllabic structure of the language requires a frequency of vowels which is greater than the proportion of vowel phonemes to phonemes. Since there are fewer vowels than consonants, and since vowel-consonant is the basic distinctive feature subdivision, vowels have shorter values (codings) than consonants. Hence there is a structural requirement that the phonemes with shorter codings be used more frequently, and I think that this accounts for the gain in efficiency noted. This fact can thus not be used as even indirect support for the view that statistical considerations of this sort are relevant to the choice among phonemic solutions.

[10] In fact, these are perhaps the most striking examples brought up in Chao's paper, The Nonuniqueness of Phonemic Solutions of Phonetic Problems, Bulletin of the Institute of History and Philology, Academia Sinica, vol. 4, part 4 (1934), where the issue of nonuniqueness is raised most clearly, and around which the Jakobson-Halle discussion of this problem centers.

there is no issue of truth versus convenience here. This phrasing of the problem has perhaps been suggested in part by the recent 'God's truth-hocus pocus' discussions, which seem to me to be quite empty and sterile in just the same way.

The question of the significance of the dichotomous scale has been obscured by a certain inexplicitness in characterizing the distinctive features. A feature can be defined as a property or as a scale. In the first case (e.g., voicing, nasality), a given phone either has the property or fails to have it,[11] just as every object is either red or nonred. Such distinctive features are thus binary by definition, and we learn nothing by being told that these features demonstrate a principle of polarity. If a feature is defined as a scale (e.g., compactness), then we can measure each phone (or, in the case of a relative feature, each phone in an opposition set) against this scale, and ask whether there are two, three or more clusters of points along this scale. If there are two, we can say (this time significantly) that the scale is dichotomous, as a matter of fact, not definition. I have not been able to determine where exactly the authors consider the polarity to be significant (i.e., an empirical fact about clustering of points along a physically defined scale) and where it is simply a tautology. Until this is clarified, the problem of 'binarity' will remain confused.

In summary, then, it appears that the phonological theory under review is conceptually sound, in its essentials, and that it embodies certain empirical claims that are subject to confirmation. Its ultimate acceptability will hinge on the results of such investigations as the following:

1. Precise physical definition of the distinctive features along the lines qualitatively suggested in the monograph under review and more carefully described in other publications.[12] Clarification of the status of these features as properties or scales.

2. Specification of the conditions on opposition sets.

Given the results of 1 and 2, we can check to see whether the empirical criterion (2) is in fact met, for many or all languages.

3. Further clarification of the criteria for determining which features are redundant. There is some discussion of this in the monograph, but it is not completely adequate.

4. Clarification of the nature of the relation between the distinctive feature analysis and the physical facts of speech, and determination of criteria of simplicity, patterning, etc., to aid in the choice among alternative analyses.

5. Investigation of prosodic features and clarification of their relation to the remainder of the phonological and grammatical structure. There is some discussion of this problem, but it is very sketchy, and it remains to be seen whether the proposals made can do justice to the full range of intonational phenomena.

6. Investigation of the efficacy of these phonological theories in accounting for the development of language in children, pathological linguistic disturbances, and other aspects of linguistic behavior. For many years Jakobson has urged that these problems are of utmost importance for linguistics and that they provide crucial tests for the adequacy of phonological theory. These topics are discussed at length in the monograph (particularly in the second part, entitled Two aspects of language and two types of aphasic disturbance) in a manner which is suggestive and insightful, though still far from conclusive. It is very much to be hoped that these lines of inquiry will be

[11] Assuming that the property is assignable to the phone in question. Cf. the discussion of redundancy, above.

[12] Cf. footnote 1. Also Hughes and Halle, Spectral Properties of Fricative Consonants, Journal of the Acoustics Society of America 28.303–10 (1956); Halle, Hughes, and Radley, Acoustic Properties of Stop Consonants, JASA 29 (1957); and Halle and Jones, The Phomemes of Russian, to appear.

further pursued. They are sure to provide a very fruitful orientation for linguistic research.

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SPANISH CANOA AND ITS CONGENERS

DOUGLAS TAYLOR

According to the late William J. Entwistle, the first Caribbean—and therefore, in all probability, the first American—word to have been borrowed by an Indo-European language 'is canoa, a Carib word already adopted by the Arawaks, and meaning a *dug-out*.' And he continues:

> . . . It makes its first appearances in forms that suggest dialectal variation, and proportionately guarantee the faithfulness of the borrowers: canoa, canaoa, canaua, canahua, canagua, etc. The word scattered immediately over both continents, from the Chapote-Utah Indians in the north to the Fuegians in the South, and is discussed by Marcoy (1869) once as if Quechua and once as Chontaquiran. (The Spanish Language, London, 1936, p. 240.)

The Spaniards took this word from the presumably Arawakan language of the Taino, who may or may not themselves have borrowed it from some other, Arawakan or non-Arawakan language. Entwistle does not cite his authority for assigning it to Cariban; and the only means of determining its ancestry would seem to be the finding of other words related to it, and, if possible, their analysis.

In his dictionary of the language of Dominica (Auxerre, 1665–1666), Raymond Breton tells us that 'icanoácoua líem' (a verbal phrase) or 'icanaouáali' (a perfective verb) was said of a 'canot qui s'arreste', that 'acánoagle' (containing the instrumental, nominalizing suffix -gle) was the name of the *courtyard in front of a dwelling*, and that the aorist habilitative (i.e., indicating ability or disposition) verb 'kàcanoátiti' which he translates in one place by *il s'asseoit bien*, was said of a 'paresseux qui ne bouge de sa place'. Now the stems and bases of these words are clearly cognate with those of agánaua *to dwell* of the present-day Central American dialect of the same language (Island-Carib), an indefinite verb containing mediopassive -ua and verbalizing a-, both these affixes being also found in Lokono (True Arawak), and whose base occurs as a morphologically free form, as in the imperative verbal phrase ganá-bai *catch or hold or support him or it*. It seems justifiable, therefore, to infer that this base has or had a wide meaning approximating that of English stay: *check or pause in movement, remain, dwell, hold up, keep from falling or sinking, support or prop*, and that it also underlies Breton's 'canáoa *piraugue*'.

Unfortunately, this inference does not help us to determine its ancestry; for the men's speech of Breton's time contained a great many—and the women's speech a few—lexemes of Cariban ancestry that combined freely with grammatical (and other) morphemes of the indigenous Arawakan language; and apart from kanáua itself, which is widespread as a borrowed term, I have been unable to find this base either in (Cariban) Kalina or in (Arawakan) Lokono. Breton also lists '*piraugue* canáoa, oucounni' and '*canot* oucounni, hueri, f. coulíala, aóuloubouli'; from which we gather that while ukuni belonged to the men's speech and kulíala to that of the women, kanáua (and the above-cited words that I have sought to relate to it) belonged, like two thirds of the words in this dictionary, to the common vocabulary. It is true that 'bouellélebou, c'est *la cour, la place qui est entre le carbet & les cases*; chacun nettoye devant la sienne, & après le souper, ils s'assemblent & discourent autour du feu qu'ils y font (si la soirée est fraiche) . . .' appears to be Cariban (cf. Venezuelan Kalina pororopo, with the same meaning), and synonymous with 'acánoagle' (see above), which we might therefore assume to belong to the indigenous speech of the women.

On the other hand, we almost certainly have this same base, kana or gana, in the women's word kanáli: *'grand canari ou vaisseau de terre dans quoi on fait l'ouicou* monca, f. canáli' (already borrowed, as Breton's gloss indicates, and still surviving in the local speech of these islands, as kanari), and, in included position, 'ticánali canáoa *la semelle, le fond du canot'—its-sole canoe*, 'arába canáli' *earthquake*—more literally, *upsetting (of the) foundation*. Now from these last two examples it becomes clear that kanáli *big earthenware vessel* is inexistent for the native speaker; and since -li is a nominal and nominalizing suffix (also found in Lokono), we may say that while this word has sundry employments, its native meaning approximates that of the nouns, French *soutien* and English *support*. Certainly the present-day Black Carib of Central America regard their noun ganáli as the same whether employed in the phrase harába ganáli of an *earthquake*, or elsewhere of a *deep earthenware jar*, or again elsewhere of the *deep sea* (as distinguished from *inshore*); and that despite the fact that this last employment, not mentioned by Breton, may well be an extension induced or influenced by Fr. canal *mer resserrée entre deux rivages*; (cf. Fr. Creole kanal *deep sea*).

I conclude that kanáua and kanáli are Island Carib words containing Arawakan suffixes (-ua and -li; see above), whose native meanings approximate, respectively, *(that which is) sustained (on the water)*, and *support* (N) or Fr. *soutien*. But since the base kana has not been found (except in possibly borrowed kanáua) in either Kalina or Lokono, it seems possible that it may have belonged to some unrecorded Antillean language, elements of which were taken over by the first Arawak tribes to reach these islands. Alternatively (and I think probably), it may be Arawakan, but itself a complex form rarely occurring in Lokono. What follows is based on the latter supposition, and is, inevitably, speculative.

Looking further afield in Breton's dictionary of the Dominican dialect of Island Carib, we note and compare the following entries: (1) 'cannêti' or 'cani', an exhortation variously translated *boute donc, fais donc, dis*—that is, *go ahead*: (2) 'ticánnêti racaboúchou *il est bon armurier*' (rakabusu *gun*, from Sp. arcabúz) and 'ticánnêti canáoa *il est bon charpentier de navire*' (kanáua *navire*); (3) 'kanánnêti aticum *bon ouvrier en panier*' (átiku *sp. of plant used in basketry*) and 'manánnêti rachoúchou *il n'est pas armurier*'; (4) 'anánnêti (ton liouelébouli) *il est toujours (querelleux)*' and 'ana, mis au commencement du verbe signifie *toujours, sans cesse*'; (5) 'ánaca, ánagoa, *ramer à l'aviron*' and ána *to swim* (the latter listed only in construction). In (1) I find the attributive prefix kA- *with, having, being able or disposed to (do something)*, -ani- *do* or, according to context, *thing*, both common to Island Carib and Lokono, and -ti *it or he is* (an aorist verbalizing suffix); (2) consists of a prefix ti- *its, of it* (in reference to the words meaning *gun* and *canoe*) together with the same form as in (1) and the words for *gun* and *canoe*; in (3) the morpheme ana *sans cesse* has been added to 'cannêti' (1) following the prefix kA- and preceding the rest of the word, the prefix being replaced by privative mA- *without, not having, unable or not disposed to (do something)*, also common to Island Carib and Lokono, in the second form cited ('manánnêti'), and by zero in the first form cited under (4). To both Island Carib and Lokono also belong the verbal suffixes -ka and -gua of ánaka, ánagua, with which compare Lokono anakua *to paddle (a boat)*; and Breton's examples show that the three forms cited under (5) might be employed indifferently; just as to this day Fr. nager *swim* is employed locally in these islands either for *swim* or for *row or paddle (a boat)*.

Now since Arawakan languages appear (according to de Goeje's observations of Lokono, and my own of Island Carib) to confuse temporal and spatial relations at least as much as does English, there is no

semantic reason why ana of (4), a morpheme indicating continuousness in time, should not be identified with ana of (5), a morpheme indicating sustainment in water. And certainly there is no semantic reason why the base of kanáua and kanáli, kana or gana, should not consist of the attributive prefix, kA- or gA-, together with this same morpheme ana of both (4) and (5); for also this base may have either temporal reference, as in agánaua *to dwell*, or spatial reference as in ganáli *support*, etc.

I conclude that the model for borrowed Sp. canoa, Fr. canot, Eng. canoe was a complex word, kanáua or ganáua (the k/g opposition, if it existed in the language that provided the model, most probably had aspiration and not voice as its distinctive feature), containing an Arawakan mediopassive suffix -ua and a base denoting sustainment in space or time. Most probably—though no formal proof has been found—also this base is Arawakan; and if so, it appears to be itself analysable, as I have tried to show in the foregoing paragraphs.

DOMINICA, B. W. I.

TWO OAXACA CHONTAL WORDS

VIOLA WATERHOUSE

The origin of two Chontal[1] words has puzzled me for some time, each for a different reason. The words are aywála[2] *horse*, and ánkiñya *banana*.

aywála *horse* has puzzled me because it appears to be a native word for a borrowed item, yet has had no recognizable derivation from any other animal name found to date in the coastal Chontal vocabulary. Most names of culture items are borrowed by the Chontales along with the item itself; thus kučí·lʸu *knife* (Sp. cuchillo), bóyas *ox* (Sp. buey). But the form aywála did not seem to follow any of the usual patterns for borrowed words. The word caballo would have probably assumed the form *kabá·lʸu, and llegua *mare* is known as yé·wa. Hence, it seemed likely that aywála was of native origin, but from where?

Data from one of the mountain villages[3] provided the answer, corroborated by additional data from Belmar.[4] In the mountain dialect, the word for *horse* is wala, and the word for *deer* walak'ek' (i.e., *wood horse*). Apparently, the Chontales, like some other Indian tribes, gave to the horse of the Spanish conquerors the name of the deer. Then the mountain Chontales added a qualifying term to distinguish the deer from the horse. The coastal Chontales, however, chose to obscure the picture by borrowing the Spanish word venado to name the native deer, while they retained the native word for deer to name the horse which became an integral part of their culture.

ánkiñya *banana* has puzzled me because of its similarity to a particular class of words with which it did not seem to fit. I had supposed it was a native word till I found in Wonderly's material[5] a suspiciously similar form ginia for *banana* (Sp. guineo). But how explain the prefix an-? an- occurs in Chontal only with loan words for sacred or religious items such as andyós *god* (Sp. dios) and ankrús *cross* (Sp. cruz). The banana showed no evidence of being a sacred object to the Chontales as far as we could ascertain.

[1] Oaxaca Chontal is a Hokan language spoken by about 9000 Indians living in the southern part of the state of Oaxaca, Mexico. The language is divided into two major dialects. The data for this paper is mainly from the coastal dialect.

[2] Chontal phonemes are discussed in the paper of that name published in IJAL 16.35–9 (1950).

[3] Data given me by Mr. Thomas McDougall, a botanist who has spent much time in the Chontal region.

[4] Franscisco Belmar, Estudio de El Chontal (Oaxaca: 1900), 29. Here Belmar lists the word tlaiguala la bestia (*the horse*) and tlacanocaigualaquequé venada *doe* (from tlacano *female*, and aigualaquequé *wood-horse* or *deer*).

[5] Data from William L. Wonderly Phonemic Acculturation in Zoque, IJAL 12.94 (1946).

[6] Ermilo Abreu Gomez and Joseph S. Flores, Leyendas Mexicanas, (New York: 1951) 87–8.

Chance reading in a book called Leyendas Mexicanas[6] provided the answer. In a section on Zapotec legends called Jesús, los animales y las plantas, the story is told of how the banana plant (Sp. guineo) was reported to have sheltered Jesús when he was fleeing from his enemies. For his reason, this type of banana, more than others, has little crosses, easily seen when the fruit is sliced, and the Zapotecs cross themselves and exclaim whenever they cut the fruit. Since Chontal customs have been largely influenced by or actually borrowed from the neighboring Zapotecs, the mystery of ánkiñya now also appears to be solved.

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